EXHIBIT 4

UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF MISSOURI

EASTERN DIVISION

****

MICHAEL BLAES,

Plaintiff,

v. Case No. 4:14-cv-00213-RLW

JOHNSON & JOHNSON, et al,

Defendants.

****

CONFIDENTIAL

DEPOSITION OF JOHN J. GODLESKI, M.D.

Wednesday, May 27th, 2015

9:00 a.m.

Held At:

Harvard School of Public Health
665 Huntington Avenue
Boston, Massachusetts

REPORTED BY:

Maureen O'Connor Pollard, RMR, CLR, CSR

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EXHIBITS

EXHIBITS 11 AND 12 RETAINED BY WITNESS

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PROCEEDINGS

JOHN J. GODLESKI, M.D.,
having been first duly identified and sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. FERGUSON:

Q. Would you state your full name for the record, please?

A. John Godleski.

Q. And what is your business address, Doctor?

A. 665 Huntington Avenue, Boston, Massachusetts.

Q. And who are you employed by?

A. I'm employed by Brigham & Women's Hospital Physicians Organization, and Harvard School of Public Health at Harvard University.

Q. And the building we're in is 665 Huntington, which is the Harvard School of Public Health?

A. That's correct.

Q. You have given a deposition before, correct?

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A. Yes.

Q. On about how many occasions?

A. Maybe 20.

Q. And have those been -- let me try to break those down a little bit.

How many of those have been as an expert witness in which you've been retained in a case similar to this one, just an estimate?

A. Probably a half to two-thirds.

Q. And then the remainder are in what circumstance; as a treating physician?

A. Treating physician.

Q. So you obviously know the rules and how these things go with that experience, but let me just go over a couple of things.

My name is Ken Ferguson, I represent Imerys, and Ms. Ahern represents Johnson & Johnson.

Do you understand that?

A. Yes. What's Imerys?

Q. Another Defendant in this case.

A. Okay.

Q. I'll be asking you some questions regarding your opinions in this case and your report that you've rendered. Make sure you understand what I'm asking. If you don't understand my question, which is entirely possible in this context, let me know and I'll restate the question so we can make sure we're communicating properly. Okay?

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A. Okay.

Q. Also make sure you answer everything out loud so it can be taken down by the reporter, who can't take down body language, or at least it forms a challenge for her. All right?

A. Yes.

Q. Have you brought documents relating to this case with you today?

A. Yes.

Q. Can we just go through those so we know what we have? It's a little tedious, but that way we'll at least have them identified for the record.

A. Okay. There's my CV.

Q. All right.

(Whereupon, Godleski Exhibit Number 1, Dr. Godleski's Curriculum Vitae, was marked for identification.)

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BY MR. FERGUSON:

Q. I have marked as Exhibit 1 to your deposition your CV. And is this more or less a current CV?

A. Yes.

Q. It looks like it's dated April 25th, so very recent, right?

A. That's correct.

Q. Let's see what else you have, please.

A. Notice of the deposition.

Q. All right. I guess just to be complete, I'll mark that even though I already have one, but we have it in case we need it.

(Whereupon, Godleski Exhibit Number 2, Amended Notice to take Oral Deposition, was marked for identification.)

A. Okay. My expert report.

BY MR. FERGUSON:

Q. This is your expert report in the Blaes matter, correct?

A. That's correct.

Q. Dated April 3, 2015. Marking that as

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Exhibit 3.
(Whereupon, Godleski Exhibit Number 3, Dr. Godleski's April 3, 2015 Expert Report, was marked for identification.)
A. This is the pathology report on Ms. Blaes from the hospital where the surgery was done.
MR. FERGUSON: So pathology report from St. Mary's Health Center is marked as Exhibit 4.
(Whereupon, Godleski Exhibit Number 4, Pathology Report from St. Mary's Health Center, 1/4/15, was marked for identification.)
A. This is the summary of materials that are included in the report, as well as discussed in the report, so that where we have examples of -- where I have one example, I have six in there, and so it's a little more complete in terms of the findings.
BY MR. FERGUSON:
Q. All right. When you said "this," that's entitled "Case EDS Analysis Report for

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S08-8716N," correct?
A. That's correct.
Q. And that's marked as Exhibit 5 to your deposition.
(Whereupon, Godleski Exhibit Number 5, Document titled Case EDS Analysis Report for S08-8716N, 4/1/2015, was marked for identification.)
BY MR. FERGUSON:
Q. And let me just understand what this is a little bit more.
So as I recall, in your report, which we'll talk about later, you specifically discuss and have a spectrum from one particle that you looked at, correct?
A. That's correct.
Q. Is this for that particle only, or does it include the other particles?
A. This has all six particles that are primarily -- that are exclusively talc, and it has examples of particles that were in the other 33 that included a talc signal plus other materials.
Q. And we'll get into this later, but

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when you say a talc signal, what do you consider a talc signal in that context?
A. Magnesium silicon in the proper proportions.
Q. All right. We'll come back to that.
What else do you have, sir?
A. I have the billing for doing that work.
MR. FERGUSON: And I'm going to mark as Exhibit 6 your billing information.
(Whereupon, Godleski Exhibit Number 6, Three pages of billing information, was marked for identification.)
A. Actually I have two copies of this. It's the same thing. That is the -- my lab billing, what we provide if somebody asks "what do you charge."
BY MR. FERGUSON:
Q. All right. And is it okay with you if I just include in Exhibit 6 these four pages of billing information?
A. That's fine.
Q. And just --
A. And one of them is just a duplicate,

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so you may want to have only three, and we can --
Q. You're right. I've turned Exhibit 6 into a three page document instead of four.
A. I can put this back.
Q. Now, if you wouldn't mind, let me follow up a little bit on this.
Exhibit 6 is entitled "Billing for Case Analysis for SEM Work." Does this include all of your time that you have put in, or is there another -- would there be other billings that you either have invoiced or will invoice for other than SEM work?
A. Let me just look at that.
Q. Certainly (handing).
A. At this point, this has everything that has been billed on this case. And going forward, the additional billings will be collecting the materials for this deposition, and this deposition itself.
Q. Okay. And any estimate as to how many hours, approximately, you have put in that is not included on Exhibit 6 up to the time we started this deposition?

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A. Probably three, three hours or so, four hours maybe.
Q. All right. Just an estimate. Okay. Thank you, sir.
What else?
A. I have case list of testimony that I provided when I gave my -- provided my expert opinion. This was something that was asked for.
(Whereupon, Godleski Exhibit Number 7, Case List of Testimony, was marked for identification.)
BY MR. FERGUSON:
Q. All right. So Exhibit 7 looks like it's between 2011 and 2015, and includes, it looks like, three depositions and three in-court testimony, correct?
A. That's correct.
Q. All right. Is there additional -- I understand from what we talked about earlier in terms of the number of depositions, there are additional depositions that you have given, but that would be before this five year or so period, is that correct?
A. That's correct.

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Q. I guess while I have it here, so I don't forget, Budke, B-U-D-K-E, versus Ethicon where you gave a deposition and in-court testimony, that's a transvaginal mesh case, is that correct?
A. That's correct. But from my perspective it was a lung pathology case, and that was what I was there to testify to.
Q. Okay.
A. The mesh issues initiated the problem, but the cause of death were pulmonary, so I was there as a pulmonary pathologist.
Q. And your testimony related to a pulmonary embolism, is that correct?
A. No. That testimony related to the fact that the patient had extensive pneumonia, and the defense was claiming that the patient had Wegener's granulomatosis, which as a pulmonary pathologist I was well-qualified to testify that that wasn't there.
Q. Certainly the testimony in that case was in your primary focus, which is pulmonary issues, right?
A. That's correct.

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Q. Then DeGeorge versus Holden Oil Company, that was in-court testimony, what was the issue in general in that case, please?
A. The issue there was that the Plaintiff was claiming that the oil company had not properly maintained his oil burner, causing soot to come back into the house, and the oil company said that he was told to cut trees overhanging his chimney, which he never did. And then the amount of dust that was actually found in his house was commensurate with the house's location next to an expressway. And his children, in fact, were examined fully at Children's Hospital and found not to have any pulmonary disease, not to have any demonstrable effects of any exposure.
And so I was testifying as -- in regard to my environmental expertise with exposure, both within the house, as well as in the environment surrounding the house.
Q. And you were a retained expert in that case?
A. I was a retained expert in that case by the defense.

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Q. And going back to the Budke versus Ethicon, there you were a retained expert for the Plaintiff, is that correct?
A. That's correct.
Q. The next case that you have deposition and in-court testimony is Berg versus Johnson & Johnson, right?
A. That's correct.
Q. And then the fifth item on here is Caldwell versus Rivers, which was deposition testimony back in 2011. Can you tell us in general what the issue was in that case?
A. I believe it was a lung cancer case, and diagnosis of the lung cancer. But it was a long time ago, and I may not recall the details exactly.
Q. And do you recall whether -- was that a medical malpractice case?
A. It was a medical malpractice case, and it was a lung cancer issue.
Q. And were you retained in that case by the Plaintiff, or the Defendant?
A. That case was the Defendant.
Q. So, and I know you have a vague

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recollection, was that a treating physician then?
A. No. I was a pathology expert. I believe in that case I ended up not testifying in court. I think I gave a deposition.
Q. That's what it says.
A. Okay. Yeah, I don't remember much about it.
Q. Okay.
A. But that was in 2011, I believe, and that was within the window that I was asked to provide.
Q. Understood.
All right. Tell us what else you have, please.
A. This is the sheet that came with the slides that I received that was provided by the office that received them and sent them on to me.
(Whereupon, Godleski Exhibit Number 8, 1/21/15 letter, was marked for identification.)
BY MR. FERGUSON:
Q. All right. And that's Exhibit 8. And

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that's on the letterhead of a law firm enclosing, it says, pathology reports along with slides and blocks, correct?
A. That's correct.
Q. And we'll talk in a minute about where those are currently.
A. Okay. And here's an e-mail directing me what to do with the slides.
And here's a cover letter that says what I did with the slides, and that they were transferred to that law firm to be transferred to another law firm.
(Whereupon, Godleski Exhibit Number 9, 4/20/15 e-mail, was marked for identification.)
BY MR. FERGUSON:
Q. So Exhibit 9 is the e-mail you referred to to you indicating where you should send the 32 pathology slides.
A. That's correct. So I no longer have those slides in my possession.
I still have the blocks. And here are the blocks that were provided to me that we didn't further study. And these are the blocks

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that we studied. They are still on scanning electron microscopy mounts.
And if I can put this in context for a moment, previously we used to put the sections on carbon planchets, and now we're using a new technique where we just use the variable pressure function on our microscope, and that allows us to put the paraffin block into the microscope with no chance of essentially vaporizing paraffin into the microscope and contaminating the microscope. So we've gone to looking directly at the surface of the block after we've cleaned that, and we describe that in the report.
But these are now much more easily handled specimens, and so I could mail them, I could give them to you afterwards. A lawyer doesn't have to come specifically to my office to take them as they had in the Berg case, for example.
Q. You'd probably rather avoid lawyers coming to your office anyway, right?
(Whereupon, Godleski Exhibit Number 10, 4/29/15 letter from Dr. Godleski,

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was marked for identification.)
BY MR. FERGUSON:
Q. Let me mark as Exhibit 10 the letter you described, which is a letter from you to Kathleen Frazier, correct?
A. That's correct.
Q. Then we can talk about what to do -- let me just mark these, and then we can talk about what to do with them.
(Whereupon, Godleski Exhibit Number 11, All blocks studied under scanning electron microscope, was marked for identification.)
BY MR. FERGUSON:
Q. Can I have the little plastic box there?
A. Okay. And this is sealed with tape, we don't want to open that because we're avoiding any contamination.
Q. I don't even plan to touch it, other than to stick this exhibit sticker on it.
A. Okay.
Q. So Exhibit 11 to your deposition, again tell us briefly what that is.

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A. This is a sealed box containing the paraffin blocks that we studied in the scanning electron microscope.
Q. Then on -- would you mind putting that Exhibit 12 on the -- why don't we do them separately. Or do you want to do them the same?
A. I can put this inside this bag, and then that will make it simpler. And the reason the one block is in a separate bag was I initially separated out all of these blocks that were in this bag to be studied by a CM. This block wasn't. Those blocks were prepared and studied, this block never was, because we found more than enough.
Q. And let me just clarify that for the record.
Exhibit 11 includes all the blocks you actually studied under the scanning electron microscope, correct?
A. Either studied, or were prepared to be studied.
(Whereupon, Godleski Exhibit Number 12, Blocks not studied under scanning electron microscope, was marked for

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identification.)
BY MR. FERGUSON:
Q. All right. Fair enough.
And Exhibit 12 includes blocks that were not studied under the SEM, correct?
A. That's correct.
I just wanted to make sure that's, in fact, what it was, and I hadn't made an error and had another block there. And these were all together, so they're correct.
Q. And Exhibit 12 that we've placed the exhibit sticker on is in a Ziploc bag that's labeled "Biohazard" and has other information on it, correct?
A. That's correct.
Q. And within the bag there are a number of blocks, and then there's also another Ziploc bag with a single block in it. And tell me again what the significance of the one separate block in the separate Ziploc bag was?
A. That was another block that had been found to have material on polarized light but wasn't further studied. And, in fact, most of the studies were done on one block where we

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found most of the findings.
Q. Okay. Why don't you just -- I don't want to mess with those. Why don't you set those aside in a place you're comfortable with.
A. Let's put them back in here.
Okay. And the last thing that I have is this CD, which has on it all the data from the microscopy, has all the polarized light pictures that I took that are not included in the report. I have an example in the report. It has all the studies that we did. You'll see that we did over 300 analyses, and we -- in the report I describe how each of those are -- what the findings of each of those are.
And this disk then has the more than 300 analyses that we did documenting all the endogenous particulate that we found, as well as the foreign material that we found in this case. So if anybody wants to look at this in all its detail, it's all provided there.
Q. And that -- the disk you're talking about we've marked as Exhibit 13, correct?
A. That's correct.

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(Whereupon, Godleski Exhibit Number 13, Disk containing all data from microscopy, was marked for identification.)
BY MR. FERGUSON:
Q. Would Exhibit 13 include the various spectra for these analyses that were done?
A. Includes every picture, every spectra, every stage location. You name it, it's there.
MR. FERGUSON: Why don't we take a quick break for a second.
(Off the record discussion.)
(Attorney Blair now present.)
BY MR. FERGUSON:
Q. I think you were just explaining something else regarding the documents. Go ahead, Doctor.
A. I believe these are all the materials and documents that I have pursuant to the notice of deposition today --
Q. All right.
A. -- where I'm asked for a large number of things, and of those things, this is what I have.

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Q. Is there anything else, Dr. Godleski, that you have reviewed and perhaps not retained a copy of with regard to this case?
A. Not that I can think of.
Q. Other than Exhibit 4, which is a pathology report from St. Mary's Health Center, have you reviewed any other medical records regarding Shaun Blaes?
A. No.
Q. Okay. As we discussed earlier, we're here at the School of Public Health, correct?
A. That's correct.
Q. And you work as a pathologist in the department of environmental health, is that correct, or did I state that wrong?
A. I would say that in my role here I'm a physician scientist. I have a electron microscopy lab here at the school, it's the only one in the school. I do research here. I teach here. I teach graduate students. I have other responsibilities here that don't necessarily involve solely pathology, although my role at both institutions is very much interrelated.
Q. Your title actually is associate

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professor of pathology, though, correct?
A. That's correct.
Q. And is it correct that your research focuses upon the pulmonary and systemic responses to inhaled ambient air particles?
A. Most of my research focuses on that.
(Whereupon, Godleski Exhibit Number 14, Dr. Godleski's bio from the School of Public Health website, was marked for identification.)
BY MR. FERGUSON:
Q. And I didn't invent that phrase, I'm not saying you're saying anything inconsistent with this, but your bio off the website of the School of Public Health specifically says "Dr. Godleski's research focuses upon the pulmonary and systemic responses to inhaled ambient air particles," correct?
A. That's correct.
Q. And obviously pulmonary means lung, correct?
A. That's correct.
Q. And you indicate also in this that your studies use cardiac and pulmonary

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measurements with inhalation exposure, correct? So you're looking at inhalation exposure generally as your research focus?
A. That's correct.
Q. And in looking at your bio here from the School of Public Health, there's no mention in that bio that your research focuses on particles that are not inhaled through the air, correct?
A. Well, you only get so many words. If you look at my CV, I think it outlines the full breadth of what I do.
Q. Okay. Obviously we all have limited words, maybe lawyers not so much, but your bio and the words that you selected there certainly do not include any information that your research focuses on particles that are not inhaled through the air?
A. It depends on what you look at. For example, if you look at the Harvard Catalyst, it describes my EM lab and my facilities and the role that I have in electron microscopy. This is the -- from the department of environmental health here, which has a focus on inhaled

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particles and ambient environment, and so that's what's emphasized.
Q. And there's certainly no mention in this bio that your research focuses on particles which enter the body through other means other than inhaled, correct?
A. In this bio, that's correct.
Q. And if I wanted to find a bio of you that talked about your research focusing on particles that enter the body through means other than inhalation, where would I find that bio?
A. Well, Harvard Catalyst is one place. Within the department of pathology at Brigham & Women's Hospital, I'm known as the person to go to to identify foreign materials in tissue. I've looked at breast tissue, I've looked at perineal tissue, I've looked at tissues from literally all over the body, skin, as a way of identifying foreign materials from tissues. So it may not be something that's emphasized in the particular bio that you have, but certainly there's information out there if you look hard enough. And I'm not looking for business.

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Q. Understood. Understood.
Certainly there's no mention in the bio we looked at that you have a research focus on ovarian cancer, correct?
A. That's correct.
Q. Okay. And if I look at some of these other bios that you might have out there for Harvard, other than the one from the department of environmental health, I'm not going to find any mention that you have a research focus on ovarian cancer specifically, am I?
A. I'm not sure.
Q. You're not sure?
A. No, I'm not sure. I don't go on-line and check all my bios.
Q. Okay.
A. Very often they're not even put together by me, they're put together by somebody else.
Q. As you sit here, you're not aware of any bios that you have at Harvard that indicate you have a research focus on ovarian cancer, are you?
A. No. That doesn't say they don't

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exist.
Q. I have looked, and I'll admit probably fairly quickly, at your list of publications, I think there was one on your CV that we've marked here. Other than the 2007 article that Dr. Cramer authored and you were listed as a co-author, is it true there were no other articles that you've authored or co-authored dealing with ovarian cancer, other than the 2007 article with Dr. Cramer?
A. That's correct.
Q. Would it also be true that you don't have -- other than the 2007 article with Dr. Cramer, you have no other articles in your list of publications that deal with any gynecologic cancer?
A. That's probably correct.
Q. And would the same be true for any gynecologic disease, that you have no publications, other than the 2007 article we've referenced, that relate to any gynecologic disease?
A. That's correct.
Q. Obviously you're a pathologist, we've

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been discussing that, correct?
A. Yes.
Q. But you're not a gynecologic pathologist, correct?
A. That's correct.
Q. There are pathologists who specialize in gynecologic pathology, correct?
A. That's correct.
Q. And you're not one of those?
A. No.
Q. You've been asked to look at gynecologic pathology maybe once or twice a year generally, is that right?
A. It's become more frequent.
Q. Okay. Over your years here at Harvard, one or two times a year, correct?
A. Well, right now I'm looking at a lot more.
Q. In connection with this litigation?
A. In connection with litigation, in connection with studies with Dr. Cramer and Dr. Welch.
Q. Some of which is litigation related?
A. Some which is scientific related. I

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would say what I'm looking at with them is more scientific related questions.
Q. As a pathologist, you don't treat patients on a day-to-day basis?
A. What do you mean by "treat patients"?
Q. You don't see patients; you see their tissue, correct?
A. That's correct.
Q. You've never treated a woman for ovarian cancer, correct?
A. That's correct.
Q. You're not an epidemiologist, correct?
A. That's correct.
Q. There are people in the world who have advanced degrees in epidemiology, and you're not one of those. Fair enough?
A. That's right.
Q. And one of your appointments is at Brigham & Women's Hospital, correct?
A. That's my primary appointment.
Q. And if at Brigham & Women's Hospital they have a difficult diagnosis, a difficult issue regarding a diagnosis of the lung, you would be the person they typically come to,

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right?
A. That's correct.
Q. But if the issue is a difficult diagnosis regarding the ovary, you're not the person that they would typically go to, correct?
A. Well, it depends on what it is. If it had to do with foreign material there, I would definitely be the one that they would come to. On the other hand, if it was to identify an unusual tumor, I would not be the person they would come to.
Q. There's another -- is there another doctor at Brigham & Women's whose primary expertise is gynecologic pathology?
A. Probably about a dozen.
Q. Again, that's not you? You're not gynecologic pathology?
A. I do not include myself in that dozen.
Q. You've been hired in this case by Mr. Smith and his colleagues to provide your opinion in this case, fair enough? To analyze information and provide an opinion?
A. That's correct.
Q. Including the writing of this report

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which we've marked as an exhibit, correct?
A. That's correct.
Q. You're being paid for your time?
A. That's correct.
Q. Is it $400 an hour? Is that correct?
A. That's correct.
Q. And we have the bills in front of us that should encompass anything, but about three or four hours of your time, correct?
A. That's correct.
Q. You also testified and -- did analysis and testified in the Berg case, correct?
A. Correct.
Q. Do you have any recollection as to how much you were paid in connection with your work in the Berg case? I realize it will just be an estimate, you don't have it in front of you.
A. Yeah, I believe it was about 7 or 8,000.
Q. Other than your work in this case and your work in the Berg case, have you done any other work on behalf of attorneys in cases involving a claim that talc was associated with the patient's ovarian cancer?

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A. Ask that again?
Q. Sure. It kind of got out of hand there.
Are you working on any other cases where you've been hired by attorneys regarding talc and ovarian cancer?
A. Yes.
Q. And can you tell me how many cases you've been consulted in in that regard?
MR. SMITH: Object to form.
A. Maybe 50 or so.
BY MR. FERGUSON:
Q. And in those 50 or so cases, were those cases in which Mr. Smith retained you, or is it Mr. Smith and perhaps other attorneys as well?
A. I would say Mr. Smith and people associated, and attorneys associated with Mr. Smith.
Q. Do you know if you have been listed or identified as an expert witness in any of those 50 or so cases?
A. I believe so, at least in five or six more.

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Q. With regard to the cases you've actually been identified in, can you give me the names of those cases?
MR. SMITH: Off the record.
MR. FERGUSON: Yes, that's fine.
(Off the record discussion.)
BY MR. FERGUSON:
Q. Okay. Dr. Godleski, your estimate is that you have been retained to consult and perhaps have been listed as an expert witness in a total of 50 or so cases, is that generally correct, as an estimate?
A. That's correct.
Q. And do you have any estimate as to how much time you have spent in total on those 50 or so cases in doing whatever analysis you have done to date?
A. I would -- there's a number of about five or six of these cases where we've done the electron microscopy. There are probably maybe 15 or so where I've done the polarized light studies. There's another pile that have not been gotten to. Usually, I can say there's usually a polarized light study of a case such

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as this with this number of slides, it takes me somewhere around two hours.
Q. So with regard to the five or six, again understanding it's an estimate, on which you have done the same analysis that you have done in Blaes and in Berg with SEM, would -- just as a ball park estimate as to what your time and invoice or billing would be, would it be similar to Berg and Blaes in those cases?
A. I suspect.
Q. Okay.
A. I don't think we've done any of those bills.
Q. Okay. And have you done a report, prepared a report in any of those cases that you can recall, any of them, talking about the five or six where you've done the SEM?
MR. SMITH: Object to form.
A. How do you define "report"? Are you talking about this?
BY MR. FERGUSON:
Q. Yes, sir, I am.
A. No, none of them.
Q. So obviously on those five or six, you

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wouldn't have -- whatever time on this invoice is associated with generating a report, you wouldn't have that on those, right?
A. I haven't added up the time on them, and I haven't generated either bills, or I'm working on reports.
Q. On the 15 or so that you've said that you have done polarized light microscopy -- right?
A. Yes.
Q. On those, are those sort of in the queue to have the SEM done, or have you looked at those and decided, okay, I'm not going to do SEM on those 15 or so?
A. Most of those are in the situation where we're asking for blocks and trying to get blocks from the pathology department, and pathology departments generally don't like to release blocks, so that often is a time-consuming -- not my time, but it's -- it takes a lot of time to get those blocks, so that -- and very often I would ask for those by phone or by -- usually by phone, but sometimes in an e-mail requesting blocks, requesting someone to

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get the blocks. And so that those -- that's why I asked you to define "report." Having identified blocks and asking for them is kind of a step in the process, but it's not the, by any means, the final step. So there are cases that are in that process.
Q. All right. And so if I understand you correctly, and please correct me if I'm wrong, these 15 or so, you are intending to do the SEM analysis on them, but you're in the process of obtaining the blocks in order to do that?
A. That's correct.
Q. All right. So then that leaves out of 50 or so, as an estimate, about 30 cases on which you have not done either polarized light microscopy nor SEM, correct?
A. That's correct.
Q. And can you tell me -- and there probably are different levels in the process, but can you tell me on those 30, have you looked at anything on any of those cases, or have you just been consulted about the possibility of doing that later?
A. A lot of them are neatly organized in

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my office to be done. And generally when I -- if I receive slides, I'll look at the report, look to see that the slides are what they say they are, and that's as far as I go. This is making sure this is a pathology that has an epidemiologic association, and that there are slides there that -- sometimes you're surprised with what's in the bag.
Q. With regard to the other 30 cases, is it your plan -- and I guess things can happen to change your plan, but is your plan with regard to those 30 to have them move, once you have the information you need and the time to get it done, to doing polarized light microscopy and then on to SEM analysis?
A. That's correct.
Q. So your anticipation or your plan would be on these 50 or so cases to do the same sort of analysis you have done with regard to Berg and Blaes, is that right?
A. That's correct.
Q. Now, you've indicated you've been working as retained by Mr. Smith in these. Are you aware that you've been listed on his website

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regarding talc litigation?
A. Yes.
Q. Okay. And listed under the category of "our experts," both you and Dr. Cramer, have you seen that before?
A. Yes.
Q. Is that -- have you asked anyone to remove you from that website at all?
A. No.
Q. Let me move outside of talc litigation to other litigations.
Have you been retained in litigations other than talc in order to provide a report, opinion, and possibly testify?
A. Yes.
Q. Okay. Tell me what litigation. We've talked about the fact you testified in a mesh case, right?
A. Mm-hmm.
Q. Is that a yes?
A. Yes.
Q. Were you retained in any other mesh cases other than the one you testified in?
A. No.

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Q. And you're currently not involved in any mesh cases as a retained expert?
A. No.
Q. What other litigation -- let's talk about your testimony. In what other litigations have you given testimony in, I guess other than the DeGeorge case we talked about?
A. Well, my lab is probably the only one in this country that routinely does asbestos body counts on lung tissue of patients with mesothelioma, so that those asbestos body counts are done -- as a treating physician, it's done as a clinical test and added to the pathology report of those cases. Having done that, I then get asked either for the slides, which I'm not counting, but often I'm asked as a treating physician to either give a deposition or to testify as to the findings of those studies in court.
So a lot of my testimony, I would say almost all of my testimony as a treating physician is in these asbestos-related cases where it's taking data generated from my laboratory on patients with mesothelioma that

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have had asbestos body determinations.
Q. And you told us earlier that you've been deposed in a total of about, I think you said, about 20 cases, is that right?
A. Yeah, at least.
Q. All right. And you said that half to two-thirds of those 20 were as a retained expert, as I recall. Does that sound right?
A. (Nodding in the affirmative).
Q. And the others were as a treating physician?
A. Yeah.
Q. And let's stick with the retained expert issue. In any other -- have there been asbestos cases where you've been retained as an expert?
A. Yes.
Q. And any estimate about how many of those there have been? Not necessarily you've been deposed in, but in which you were retained?
A. Generally I try to avoid it, but I do get involved in some asbestos cases as a retained expert, so that there have been maybe a half dozen over the years.

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Q. And you said you would do asbestos body counts.
A. That's correct.
Q. Okay. And tell me what that means from the asbestos standpoint. I don't know much about that.
A. Well, there are -- asbestos fibers often form an iron coating around them that have a distinctive appearance. When you take a piece of lung, you can digest it in Clorox, essentially is what's used, and then you extract the particulates that are organic, and you are left with the mineral content of the lung. That's put out onto a filter, and you're able to see with light microscopy these asbestos bodies that are asbestos fibers covered with -- coated with iron. And so that's the determination that we do. It's a light microscopic procedure. It's relatively quick. Total time in lab both for -- the digestion can take a couple of days, but the technical time involved with it is relatively short, and that's generally billed just as part of the pathology workup of the case, so that -- but this is something that we

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do that gets me involved with cases.
And it's come about that generally these are -- these have gone from where people were deposing me about it to where they just accept this as a given, and then their experts deal with it and handle it, and so that we are asked for more determinations than I get directly involved with. And since the report is in the pathology report of the patient, they often don't even need me. So that's why the number is not as great as the number of times my name comes up in court probably.
Is there more -- there's probably another part of this question that I need to answer yet, if I remember now what the question was.
Q. That's fine.
A. I think it had to do with the retained expert, and we've talked about the asbestos.
The other retained expert have to do with either my knowledge and expertise in inhalation of particles, or in pulmonary pathology, and so that I get retained as an expert as a pulmonary pathologist in

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relationship to lung cancer, pulmonary embolism, pneumonia, other diagnoses of the lung.
Q. Okay. In what context would that be in, in terms of a medical malpractice?
A. Medical malpractice, yes.
Q. Any estimate as to how many medical malpractice cases -- and I'm trying to distinguish between the cases where you're a treating physician and ones where you're retained as an expert, any estimate about how many cases you were retained as an expert in med mal cases?
A. Almost every one I've done has been as an expert. I haven't really had any as a treating physician. I don't know, maybe 10, 15.
Q. And in those medical malpractice cases, in the 10 or 15, in how many cases were you retained by the Plaintiff versus the Defendant?
A. It's more frequently Defendant.
Q. Let's talk about ovarian cancer a little bit.
As you've discussed, you don't generally treat ovarian cancer?

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A. That's correct.
Q. You don't generally diagnose ovarian cancer?
A. In my practice at Brigham & Women's Hospital, I'm not -- I am not a gynecologic pathologist.
Q. Are you aware that the cause of most ovarian cancers is unknown?
A. That's a fair statement.
Q. Do you have any knowledge regarding what the risk factors are for ovarian cancer?
A. Yeah.
Q. What are they?
A. Well --
Q. It's not a test, I'm just trying --
A. BRCA1 and 2 gene. There's certain ethnic groups. And there's -- endometriosis is a known association. And talc.
Q. Are you aware that family history of ovarian cancer, breast cancer, or colorectal cancer increases a woman's risk of ovarian cancer?
A. Yes.
Q. Do you have any knowledge as to

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whether Ms. Blaes had a family history of breast cancer?
A. No.
Q. And you haven't reviewed any of the medical records, with the exception of Exhibit 4, the pathology report, correct?
A. That's correct.
Q. That's not part of your charge here, to look at medical records and determine what may have been a cause or not of Ms. Blaes's ovarian cancer?
A. That's correct, I don't look at medical records, other than the pathology report. And the pathology report is necessary not for the diagnosis, I can make that diagnosis, but for the -- to know where the tissue is taken from. You can't look at a slide and know whether it's a right or left ovary.
Q. Has anyone informed you that records of Mercy Hospital note that Ms. Blaes had a maternal aunt diagnosed with breast cancer at age 40?
A. No.
Q. I understand you haven't looked at the

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medical records, but sometimes you get information from other sources.
A. I have no information on this case.
Q. And no one indicated to you that Ms. Blaes had a maternal grandmother who was diagnosed with breast cancer at age 40?
A. No.
Q. In your report, which we'll come back to in some detail, you have -- I think it's your concluding paragraph, you say that the talc found in this case is evidence for a causal link between the presence of talc and the development of this patient's ovarian cancer.
Does that sound like what you said in your report?
A. Yes.
Q. In making that conclusion, did you take Ms. Blaes's family history of breast cancer into account?
A. No.
Q. While we're talking about Ms. Blaes's medicals, let's talk about the pathology report.
A. Okay.
Q. I'm sorry, I forget which exhibit

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number that is.
A. 4.
Q. Give me just a second, I think I've got a couple copies of that. I know I copied it, I don't whether it made it into my stuff or not.
Why don't you just start out, while I'm looking for that -- and I don't need you to read it, I can read it, I may not be able to understand it but I can read it, can you tell me what, from your standpoint as a pathologist, understanding you're not a gynecologic pathologist, what were the significant findings in the pathology report?
A. That she has a poorly differentiated serous carcinoma of the ovaries and tube, and that had spread into the abdomen and involved the omentum, the appendix, the spleen, and the liver.
Q. And based on what you saw, did you find anything that you would disagree with from this pathology report, based on your analysis of the tissue itself?
A. No. I probably might have added that

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there was a really prominent calcification as part of the tumor. That happens frequently in serous carcinomas. This case had a lot of calcification. I would probably add that because I knew as we looked at it under the electron microscope we were always seeing the calcium, but it was even very visible in the light microscopy.
Q. And maybe you've already told me the significance, but what's the significance?
A. Just another feature of serous carcinomas. Not all serous carcinomas have a lot of calcification. This one does.
Q. The pathology report does not say anything about the potential causes or cause of Ms. Blaes's ovarian cancer, does it?
A. No, it documents what's there.
Q. And obviously that's typical with pathology reports; they're not typically going to talk about a cause, correct?
A. Well, not all the time. It depends. What I'm thinking is that if -- for example, in the lung if you have a pneumonia and you see the bacteria, you're talking about the cause. But

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in this instance there's not a discussion of the cause.
Q. And there's certainly no mention of talc in the pathology report?
A. No.
Q. I may skip around some and come back to things, so I'm not trying to confuse you, but I'll move to a little bit different issue here.
With regard to the talc particles that you indicate that you found, it's your opinion that you found talc particles in her ovaries, correct?
A. That's correct.
Q. With respect to the -- and as I recall, there were six particles that you identified as talc, correct?
A. Well, 39.
Q. Okay.
A. Six were talc with no other material.
Q. With regard to the six, let's say, do you know how long those particles had been present in her body?
A. No.
Q. No idea, right?

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A. No.
Q. And do you know how those talc particles that you found got into her body?
A. All of the cases that -- by the time they come to me they've been seen by others and there's some assessment of talc use, perineal talc use. I don't know that information. But my presumption is that the case has been vetted to the point where when it comes to me nobody is going to put the time and effort in that we're putting in if these cases hadn't been properly vetted.
Q. Okay. When you say the cases haven't -- they wouldn't get to you if they hadn't been properly vetted, is that vetting by attorneys, or by other physicians, or what are you talking about in terms of vetting process?
A. I assume other experts.
Q. And so if I understand you correctly, you assume, then, that by the time they get to you, other experts have determined that, in fact, there was some talc exposure. Is that what you're saying?
A. That's correct.

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Q. Okay. But as far as what you see and what you know, you really can't tell how that talc got into her body, correct?
A. Well, in some cases I can see the talc in lymphatics of the perineum, and other cases I've seen the talc in the -- within the uterus or within the fallopian tube, so from that perspective, based on the studies that I've been doing, I'm able to see pathways by which the talc can get there.
Q. And you say "studies that I have been doing," what are you referring to?
A. Looking at cases.
Q. Looking at cases in the context of this litigation, correct?
A. Some in context of litigation, others in context of studies with Dr. Cramer and Dr. Welch.
Q. Do you know if you've looked at any -- have you looked for talc particles in any patient other than patients who were involved in the litigation, to your knowledge?
A. Yes.
Q. How many?

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A. 40, 50.
Q. And you're looking at 50 or so that are in litigation, correct?
A. Yeah.
Q. So is that a total of 100, or is there overlap?
A. No, about that many.
Q. Are you and Dr. Cramer writing up a paper for this, on this issue?
A. Well, we're collecting data.
Q. You're in the collecting data stage?
A. Yeah.
Q. You haven't submitted anything?
A. No.
Q. Is it your intent to collect data and present a paper?
A. That's the idea.
Q. And would that essentially be a case series?
A. We're looking at it more in terms of how we're finding the talc in the tissues so that it -- we're looking at cases that have been quantified in terms of talc use, and we have the two ends of the spectrum, and we're trying to

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use that as a way of understanding in more detail the question you're asking me, how does it get there.
Q. When you say "the two ends of the spectrum," what are you referring to there?
A. Well, in terms of the documented talc use, documented and quantified.
Q. And you mentioned that, when I asked whether you knew how talc particles got into Ms. Blaes's body, that in some cases you could see a pathway, you would see talc particles in the uterus and the fallopian tubes, in the lymph nodes. Did you see any of that in her?
A. Yes.
Q. In her analysis?
Okay. And so while you can see a pathway, do you know how those talc particles got into the pathway that you're referring to as well? Aren't you making -- go ahead, I'm sorry, I don't mean to interrupt.
A. Well, this is what we're looking to determine. I mean in terms of when you consider it, certainly there's the possibility that they can go up the -- through the cavity of the

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uterus and to the fallopian tube, and we've seen talc in those locations. I think that is often assumed to be the primary way that it gets there, because you have instances where the cervix is open, we know that because women get pregnant, because sperm can get there, we know that women have menses and with that the os of the uterus is open, so there's a possibility of material going in that direction.

The one area that has not been well-studied, and I think is very important, is the lymphatics. And one of the things that we've been observing is that when you see a case where there's lymphogenic spread of tumor, especially ovarian tumor, the pattern where you see the tumor in lymphatics is often a pathway of lymphatic connection between the primary tumor and where the tumor cells are going. And I've been very impressed in terms of how close to the surface of the cervix, how close to the surface of the vagina lymphatics are, and so that these connections are very clear in terms of the possibility of these being ways that this material could get in. The fact is that we see

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a lot of foreign material within the perineal tissues, and so we're really trying to understand it and explain it.

Q. There are a number of ways that individuals can be exposed to talc, correct, other than just perineal palpitation?

A. That's correct.

Q. Talc can be inhaled, correct?

A. Yes.

Q. Can you rule out inhalation as the explanation for the particles that you claim you found of talc in Ms. Blaes's body?

A. It's unlikely. In fact, when I did a number of studies where we were looking at prosthetic joints, titanium hips, and looking to where we could then find titanium within the tissues of the body, and it just amazed me to the extent that they could get into the lymphatic system and circulate. And there we had a definite marker of material that was traceable.

So it's possible materials can get from one place to another depending on how much material is there, and when a metal hip begins

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to wear, you find the particulate every where, in fact the whole joint area becomes blackened, so that the numbers of particles are in the millions. Similar kinds of things can happen with particles in other areas, and it becomes an understanding of macrophages, macrophage biology as to how these particles are handled locally and distally.

Q. And were you referring to the paper you published back in about 1990 regarding implants and migration of --

A. Of particulate, yeah. I've been studying tissues and material, foreign materials and tissues a long time.

Q. And what you wrote on in 1990 was that those particles moved around the body quite a bit?

A. That's true.

Q. Lay person's language.

If I understand what you said with regard to my original question, I believe you indicated that you thought it was unlikely that the talc particles could have been inhaled and ended up in Ms. Blaes's ovaries, but you can't

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rule that out, is that accurate?

A. That's correct. What happens is that as materials come in, and if, for example, in the lung, inhaled materials come into the lung, if they get into the lymphatics they go to regional lymph nodes. So that if you look at a patient's lung that lived in the city or was a smoker, you'd see a lot of black material in their lung tissue, but more importantly you see it in large amounts in their lymph nodes that drain the lung in the chest.

We've been finding the same sort of thing in the perineum. If you really want to see the area where there's most talc, if you have lymph nodes on the case, it's more likely than not that you'll find more in the lymph nodes than you'll find in the other tissues, that's because that's the pathway the particles normally take to ultimately reach a site.

Depending -- the length of time they can spend in any area really isn't known, but that's the kind of information we'd like to come up with if there's some way we can do that.

Q. Can you rule out ingestion as the

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explanation for the particles of talc that you claim to have found?
A. Again, ingestion often depends on the size as to whether it can cross the gut to get into the body. From the perspective of the lung, we know, for example, that particles that don't go into the lymph nodes, one of the major routes of clearance is what we call mucociliary clearance, and those particles that come up the mucociliary escalator of the lung and bronchi are then swallowed and can be found in the GI tract.
A colleague of mine, Wolfgang Kreyling, has really made a career of tracing the clearance of particles throughout the body, and what he finds is that, for example, particles directly deposited in the lung, he'll find a lot of them in the feces. But you would expect that particles crossing from the feces go in through the liver, and then are stopped in the liver. In fact, you don't get much in the liver of particles that are cleared out of the lung and go down. Solubilized material you'll find more frequently in the liver. But

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insoluble particulate usually will go out through the feces.
So it depends on the material to a great extent, but for the most part what goes down through the GI tract doesn't necessarily circulate very well if it's in the form of an insoluble particulate.
Q. Going back to my question, though, you can't rule out ingestion as a possible way that the talc particles that you indicate you found got into her body?
A. No, but I would put it very unlikely.
Q. Certainly you'd agree that it's possible to ingest talc particles from food, drink, or medicines, correct?
A. Yes.
Q. Or even the air, correct?
A. Yeah.
Q. Talc is in a lot of materials?
A. Yes. We have to be very careful when we're wanting to study talc that we have no contamination from the environment.
Q. Now, when we talk about the particles, as you've been discussing, migrating to

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different parts of the body, is the fact that perineal application at least is close to entry point for the ovaries? Is that one of the reasons why you believe that that is evidence of a relationship?
A. That's -- well, the main reason that there's a relationship is that it's been studied, and there's been a dose-response relationship established between talc use and development of ovarian cancer. And it's perineal talc use, not any talc use, that would involve inhalation or other routes.
Q. And you're referring to Dr. Kramer's work?
A. Dr. Kramer's work.
Q. Anybody else you point to who has come to the same conclusion?
A. Yeah, there are several papers. Chang, Hess. A number of those -- of papers that have come to that conclusion.
Q. And there are a number of papers and institutions who have come to a different conclusion, correct?
A. Not many.

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Q. Okay. We can talk about that.
Are you aware, Dr. Godleski, that condom manufacturers coated their products with talc for a number of years?
A. Yes.
Q. Do you know whether Mr. and Mrs. Blaes ever used condoms during their marriage?
A. No.
Q. You don't know one way or the other?
A. Don't know.
Q. Wouldn't that be significant to you as far as providing an opinion that your finding talc particles, in your opinion, was evidence to support causation in this case?
A. Well, there's also the issue of whether use of -- the perineal use of talc can be moved further into the vagina with sexual intercourse.
Q. And I'm focused on the talc on the condoms now. Don't you think it's important to know whether or not Mr. or Mrs. Blaes utilized condoms during their marriage in terms of identifying where the talc that you indicate you found came from?

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A. It's potentially another source.
Q. And certainly since you don't know when this talc was deposited in Ms. Blaes's ovarian tissue, you could not rule out condom use as a source for the talc that you indicate you found, correct?
A. It could contribute.
Q. And has anyone indicated to you that Mr. Blaes testified that he and his wife used condoms for 25 years?
A. No, I don't -- I'm not aware of that.
Q. And as we've been discussing for the last few minutes, you really can't tell from what you saw where the talc that you identified came from, correct?
You don't like that question. Let me try again, okay?
A. Okay.
Q. No problem.
We've talked about the fact that you can't rule out inhalation, ingestion, or condom use as a source for the talc particles you've seen, correct?
A. Well, we've said that

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inhalation/ingestion are very unlikely. The fact that there's condom use that may have talc on the condom may contribute, I can't rule that out as a possibility.
Q. We've been going for about an hour and 25 minutes or so. Why don't we take a brief break and stretch our legs, and then come back and talk some more, okay?
A. Okay.
(Whereupon, a recess was taken from 10:24 a.m. to 10:31 a.m.)
BY MR. FERGUSON:
Q. Dr. Godleski, we've taken a break. Are you ready to proceed?
A. Yes.
Q. You talked earlier about the fact that on occasion, even though you're not a gynecologic pathologist, you are asked to look at ovarian tissue, correct?
A. Yes.
Q. Fair to say that your -- that you would be called in in the situation where you were looking for certain particulate matter with regard to the ovary?

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A. Yes, that's correct.
Q. You're not an immunologist, correct?
A. No.
Q. Have you ever published any papers on immunology?
A. Well, immunology is a big field. I've done a lot of papers on macrophage biology, and macrophages are part of immunologic response, so from that perspective you could say I've published on immunology.
Q. Okay. And we can probably find those if we look at your CV?
A. Yep.
Q. Do you know offhand which ones they are so I don't have to look through them all?
A. There's probably 20 or 30 there.
Q. Okay. 20 or 30 on macrophage biology?
A. Yes.
Q. You made reference a couple of times, Dr. Godleski, to an article that you co-authored with Dr. Cramer in 2007. I'll mark that as Exhibit 15 to your deposition.

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(Whereupon, Godleski Exhibit Number 15, Cramer, et al article titled Presence of Talc in Pelvic Lymph Nodes of a Woman With Ovarian Cancer and Long-term Genital Exposure to Cosmetic Talc, was marked for identification.)
BY MR. FERGUSON:
Q. We'll just talk a little bit about that.
A. Okay.
Q. Now, this is the paper that you were a co-author with Dr. Cramer on that has to do with a case report, correct?
A. That's correct.
Q. In the first paragraph after the abstract you indicate that the "epidemiologic association between the use of cosmetic talc and genital hygiene and ovarian cancer was first described in 1982," correct?
A. That's correct.
Q. And the 1982 article you're referring to is an article by Dr. Cramer, correct?
A. That's correct.
Q. And then that sentence goes on to say,

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"and many subsequent studies found talc use to increase risk for ovarian cancer." Correct?
A. Yes.
Q. And then there's a citation, a footnote to that. If we look back at the last page with the footnote, that cites to one article, which is a 1999 article by Dr. Cramer as lead author, right?
A. Yes.
Q. So fair to say at least in this case report the citation for many subsequent studies finding talc use to increase risk for ovarian cancer is one article, right? I'm not saying that's all, but that's all you've cited to here?
A. That's correct.
Q. Now, continuing in that paragraph after the sentence we just talked about says "However, the causality of the relationship has been challenged for several reasons," correct?
A. That's correct.
Q. And then the first reason why this has been challenged, according to your article, is "the association is a relatively weak one." Correct?

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A. That's correct.
Q. Okay. It says "summary relative risk of approximately 1.3," correct?
A. Mm-hmm.
Q. Yes?
A. Yes.
Q. And you would agree that's a relatively weak association, right?
A. Relative risk of 1.3 is significant, but it is relatively weak, as it says here.
Q. Then the second reason stated in your article as to why the causality of this relationship has been challenged is that "no clear increase in risk with duration of use has been found in most studies," correct?
A. That's what it says.
Q. Okay. And when you say that's what it says, that's what you said as co-author to this case report, right?
A. Yes.
Q. And then the third reason why the causality has been challenged, according to your article, is that "the ability of talc used in the genital area to enter the pelvic cavity has

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not been conclusively proven," correct?
A. That's correct.
Q. And you would still agree with that, correct?
A. Well, it's something we're still working on.
Q. Look at page, it's the second page of the article, Page 499, you indicate that "X-ray spectroscopy showed a magnesium and silicon signature - compatible with talc," correct?
A. That's correct.
Q. Tell me about that, tell me about what this -- this little spectrum below, tell me what that is. It's Exhibit -- Figure 2-B. Explain what that is to me, please.
A. Well, it's an x-ray spectrum. And what one does is you essentially focus the beam on the particle. And although the beam is fairly tight, it's not completely, so that you get a little bit of the material around it, so that you get a carbon signal, as you can see in this spectra, the first peak is labeled C, and that's coming from the tissue itself. And then the next is oxygen, and talc being a magnesium

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silicate it includes some oxygen. And then you look at the relationship of magnesium and silica, and you can see that it's -- this relationship is what you would expect to see with talc, this has been reported many times, and this is what we look for.
It turns out that there's also a slight signal of iron and aluminum in this -- in this spectrum, it's very small. That can be from surrounding material or some contamination of the talc.
Q. Could iron be endogenous?
A. The iron could certainly be endogenous.
Q. So in order to determine that this is compatible with calc, you look at the spectrum, and you look at the ratio between the silica and the magnesium, correct?
A. That's correct.
Q. All right. And in this case -- and it's not marked, but just in looking at it, it looks like about 12 to 9, would you agree with that, silicon to magnesium?
A. Yes, roughly so.

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Q. And the ratio, if we do the math, which, of course, I had to do on an iPhone or something of 12 to 9, that's a ratio of 1.33, correct?
A. Okay.
Q. And so that ratio is what you're indicating is consistent with talc, correct?
A. Yes.
Q. So if that ratio were, say, 1 to 1, that would not be compatible with talc, right?
A. Less likely.
Q. Under the section called "Comment" on Page 499, it says "Talc is a hydrous magnesium silicate chemically similar to asbestos but structurally quite different," correct?
A. That's correct.
Q. And certainly you wrote that and agree with it, that talc is structurally quite different from asbestos?
A. Yes.
Q. In this article you also cite to a paper by Heller, Et Al on Page 500, correct?
A. Yes.
Q. And do you recall, maybe not word for

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word, but generally the Heller article?
A. Not at this point.
Q. All right. But what you all wrote here was that in the Heller paper, they actually evaluated the potential for talc to migrate into the pelvis, correct?
A. Yes.
Q. "By electron microscopy, tissues from 5 of 12 women who regularly used talc and 6 of 12 who had not were found to have particles consistent with talc," correct?
A. That's correct.
Q. And you state in here that the investigators from the Heller paper "concluded that talc can be found in ovaries but this does not correlate with genital talc use," correct?
A. That's what they concluded.
Q. And, in fact, if we look at their findings, the specific numbers, there was a higher proportion of women who had not regularly used talc who were found to have particles consistent with talc as opposed to women -- let me start over again. I didn't do that well.
5 out of 12 women who regularly used

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talc were found to have particles consistent with talc, correct, in their study?
A. That's correct.
Q. And of the 12 women who did not use talc, there was -- there were more women that did not use talc?
A. There were 6.
Q. There were 6.
A. So it's roughly 50 percent in both.
Q. So at least in their study, clearly women who had not regularly used talc were found to have talc particles, or particles consistent with talc?
A. That's what they found.
Q. And as we've talked about, there are other sources of talc in the ovaries other than perineal application, correct?
A. Yes.
Q. And, in fact, another point of the Heller article is none of these women had ovarian or any other cancer, correct?
A. That's correct.
Q. So again, we had women who were found to have talc in the ovaries, but did not have

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ovarian or any other cancer, right?
A. That's correct.
Q. Okay. And then back to -- away from the Heller study, back to the statements made by you and your colleagues who wrote this, on Page 500 in the second -- first full paragraph on the second column, you say "Also we are not claiming that a causal relationship between ovarian cancer and talc use is proven for this case or in general," correct?
A. Well, for one case you can't make that claim and expect to get it published.
Q. And it says "we are not claiming that a causal relationship between ovarian cancer and talc use is proven for this case," correct, but it also says a causal relationship between ovarian cancer and talc use has not been proven in general, correct?
A. That's what it says.
Q. And again, you were an author, I assume you had input into this article, correct?
A. Yes.
Q. And then the next sentence indicates that "case reports cannot establish causality,"

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and that's a basic assertion, correct?
A. Yes.
Q. You'd agree with that?
A. Yes.
Q. Let me, while I'm thinking about it, let me skip over to --
MR. SMITH: Can I make a real quick call?
MR. FERGUSON: No problem.
MR. SMITH: Take two seconds.
MR. FERGUSON: No problem. Take your time. I'm moving to a different area.
(Whereupon, a recess was taken from 10:46 a.m. to 10:50 a.m.)
BY MR. FERGUSON:
Q. Doctor, a couple more questions on this 2007 article. Again on Page 500 in the same -- in that paragraph we referred to, the first full paragraph in the column on the right, it says that "it is necessary to establish in a quantitative manner the likelihood of finding talc in lymph nodes of women with ovarian cancer and correlate this by whether they did or did not use talc."

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That's what it says, right?
A. Yes.
Q. Is that, trying to establish that, is that the purpose of your current work that you're doing in these cases, these matters?
A. Yeah, some of it. Actually the person that started that study left, and then somebody else picked it up and then didn't finish it either, and it sort of left not finished.
Q. And this research started in 2007?
A. It happens.
Q. So it's been going on for eight or so years?
A. Well, not continuously, by any means.
Q. Off and on for eight years, correct?
A. Yes.
Q. Have you or your lab been able to get funding from any source to support this research for the last eight years?
A. No, we haven't really tried. We've had good funding in other areas, and so that it's not been a direction that we've gone. Although we did apply for one local grant for it, and it had actually outstanding scores, but

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the people funding it felt it wasn't in the area that they were -- that there was interest, so that --
Q. Okay. Let's look at Exhibit 3, please, which is your report in this case. I'm going to come back to this in more detail, but I want to -- as we're talking about the spectrum from that article, I want to take a look at that. Look at Page 3, the third page, of your report.
Are you with me?
A. Yes.
Q. Okay. And toward the bottom of the page there's Figure 5, which is an EDX spectrum of what you've identified as a talc particle of magnesium, silicon, and oxygen, correct?
A. Mm-hmm.
Q. And one thing I'm a little confused about, is this sometimes called EDS and sometimes EDX? Is it the same thing?
A. Same thing.
Q. Okay. I thought so.
So you refer to the fact that Figure 4, just above the one we were talking about, is

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one of six what you call talc particles found in Ms. Blaes's ovarian tissue, correct?
A. That's correct.
Q. And Figure 5 is the EDX spectrum regarding that, right?
A. Mm-hmm.
Q. And under the little caption under Figure 5 it says "The ratio of magnesium to silicon is the ratio expected with talc," correct?
A. That's correct.
Q. If you look at the little box in the upper right-hand side of the spectrum, that actually gives the readout of where it's silicon -- where oxygen is, as well as silicon and magnesium, correct?
A. Mm-hmm.
Q. Right? Is that a yes?
A. Yes.
Q. Just, sorry, I don't mean to be rude, just make sure we get it for the record.
Now, if we look at the silicon to magnesium ratio there, it would essentially be 1-to-1, 11.2 and 10.7, correct?

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A. That's correct.
Q. And again expressed as silicon to magnesium, that's about 1.04. Does that sound about right?
A. Well, let's stop for a minute.
Q. Okay.
A. What you did previously was to essentially look at the counts and make that distinction. The box over here, what that does is takes into account the molecular weight of the element, and so it's giving you a weight percentage of what's there. And so that's why it's not going to be the same as what you were quoting previously.
Q. Okay. And explain that to me again. Is this by weight percentage?
A. One is by -- if you just look at the graph and you look at counts, you'll see that we're sort of like 11 to 8. But once you calculate that up, and the software does this, and it takes into account the fact that we have oxygen there as well as other elements, and it gives you the balance, and gives you the weight percentage of each of those. And so with that,

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you know, those are going to be what you're going to expect to find in this.
So that whether you look at the ratio of counts or the weight ratio, you're going to get two different numbers, but they're still going to be within what you would expect to find for talc.
Q. Okay. And so --
A. If that's where you were going.
Q. I seldom know where I'm going.
So when you're talking about weight, I'm sure I'll get my terminology wrong, is that atomic weight?
A. It takes into account the weight of the element.
Q. And if we're looking at the weight of the elements in a silicon to magnesium ratio, do you believe that this EDX spectrum is consistent with the signature -- is consistent with talc?
A. Yes.
Q. And when you talk about what is the -- what is consistent with talc as far as what you're reading on the spectrum, where do you obtain that information? Is there published

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information on what would be the silicon/magnesium ratio or weight for talc?
A. Yeah, a lot of publications.
Q. Okay. Give me some examples where I might go look for that. It's not a test.
A. Almost any publication that is showing talc will have that. You can go to something like the McCrone Atlas will have that information, and you can go to -- essentially any book on EDS or EDX will tell you how that -- and talc is often used as a example.
Q. Have you ever heard of an organization called International Center for Diffraction Data?
A. Not specifically, but I'm sure there's such a place.
Q. Okay. Dr. Godleski, there have been a number of epidemiological studies published regarding this possible association between talc and ovarian cancer, correct?
A. That's correct.
Q. And have you read this literature?
A. Yes.
Q. Have you read all the articles, or

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have you read some subset?
A. I've read some at various times.
Q. All right.
A. I didn't re-read the literature to prepare for this deposition.
Q. And I'm not going to test you on that literature, even if I could.
Can you recall which articles -- can you just tell me which ones you can recall having read? We've talked about a couple of Dr. Cramer's before.
A. I've read Dr. Cramer's work. There's an article by Dr. Hess in 2010. There's another article, the name of the first author escapes me, but it's a co -- it's a study in Los Angeles, California-based. And so there have been studies geographically in different parts of the country, and I think those are three examples where Cramer's population is in this area, whereas I believe Hess's population was in Pennsylvania, and the third population is in Los Angeles, and these studies all found very similar findings.
Q. In looking at your report, which is

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Exhibit 3 we've been talking about, is it accurate to say that all the opinions that you would be expressing in this case at the time of trial would be included in this report from your standpoint?

A. I believe so.

Q. And go to the last sentence again that we've made reference to before where you say that "to a reasonable degree of medical certainty the talc found in this case is evidence for a causal link between the presence of talc and the development of this patient's ovarian cancer," correct?

A. That's correct.

Q. Do you have an opinion one way or the other as to whether there is, in fact, a causal link between the presence of talc and the development of this patient's ovarian cancer?

A. Yes.

Q. And what's that opinion?

A. That finding the talc in the tissues of this patient supports the concept that this has an etiologic role in the development of the patient's cancer.

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Q. Because it's there, it has a role in the cause?

A. Well, because there's a body of knowledge that asserts that there's a strong association, and in this particular patient we find that there is talc present in the lesional tissue.

Q. And the reason for my question is you're saying here that finding talc is evidence for a causal link, and it seems to me that's different than saying there's a causal link. Am I misreading the report?

A. I guess I'm missing the nuance of what you're trying to get at here.

Q. Your opinion that there is a causal link has to depend not only on the fact there was talc present, in your opinion, but on the epidemiological data, correct?

A. That's correct.

Q. And understanding you're not an epidemiologist, is it fair to say you would defer on the epidemiological data to the authors of those studies, including Dr. Cramer?

A. That's correct.

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Q. I want to walk you through the report now so I make sure that I understand what you said. And I'm going to kind of skip over the first paragraph which talks about your experience, which we've already talked about to some degree. After I say that, let me bring up a thing or two.

In the fourth line from the bottom of the first paragraph of your report, it says "I am the pathologist providing the final opinion on difficult diagnostic cases of lung disease within our department." Correct?

A. That's correct.

Q. But I think as we talked about earlier, you're not the pathologist providing the final opinion on difficult diagnostic cases of ovarian cancer within your department, correct?

A. That's correct. And that sentence continues and says "and I am a recognized expert whose opinion is sought by pathologists from other hospitals in the diagnosis of foreign material in tissues throughout the body using scanning electron microscopy and energy

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dispersive x-ray analyses."

Q. Looking at the second paragraph on Page 1, you say "you've reviewed the histopathological slides in the case of Ms. Shaun Blaes obtained from St. Mary's, correct?

A. That's correct.

Q. And you cite there were 32 slides labeled, as you've indicated, "which included slides of the left and right ovaries and fallopian tubes, a peritoneal biopsy, uterus, cervix, endometrium, possible myomas, surface adhesions, omentum, appendix, spleen, and perisplenic fat," correct?

A. That's correct.

Q. These slides came to you through the sources that we've already talked about, correct?

A. That's correct.

Q. To your understanding, were the slides prepared at Mercy -- St. Mary's Health Center?

A. Yes.

Q. Fair to say that you do not know what the normal laboratory protocols are at that

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hospital?
A. That's correct.
Q. Would you agree that histology laboratories at hospitals generally are not designed to keep simple, articulate contaminants out of tissue slides?
A. Absolutely.
Q. And isn't it fairly common to find particulate contaminate in normal hospital-prepared slides?
A. Yes. But the question always is is that particulate material within the plane of the tissue, within the tissue, or is it above the tissue, and there's no question that most hospital-prepared slides will have particulate material out of the plane of focus, and a lot of it. So that's why it can take as much as two hours to study these cases in order to make sure that any particle that I'm suggesting is a particle of interest is in the plane of section, is contiguous with the tissue, and indicative of a particle that would be in the tissue as opposed to some surface contamination from the laboratory.

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Q. You indicate in your report that these slides were assessed by light microscopy. And I think I know what that is, but can you explain what you mean by light microscopy?
A. A light microscope simply has a light bulb that shines from below usually, and you look into the microscope and you see the tissue, because it's stained, and cut at a thickness that allows you to see individual cells, and so you're looking into a simple microscope.
Q. Kind of like the microscope I would have had in my science kit back in the '60s, although admittedly much better?
A. Much better, but yes.
Q. Same concept?
A. Same concept.
Q. And you used that light microscopy to confirm the diagnosis of carcinoma as you've discussed, right?
A. That's correct.
Q. And is that the kind of analysis that typically the pathologist at the hospital would do, a light microscopy?
A. Yes.

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Q. Why don't you go to the next page of the report, and explain to me what Figure 1 shows. You have a caption here, but why don't you explain at that to me. What are we looking at here?
A. Let me get something to write with.
Q. No problem.
A. This is tissue, and this is ovarian stroma here. This is the tumor, and there's sort of nest of tumor all through here.
These dark blue blobs here are calcifications. And I commented before in this deposition, and I comment in the report, is that there are many calcifications within this tumor, and in this area you can see them all very clearly. And so there's tumor, and as you look at this tumor here it seems to be on the surface, it also has some calcifications there. Here it seems to be in a tissue space, and in these locations it seems to be in a lymphatic. You can see that this has -- is bounded by the tissue, but these are -- when we look at this under the microscope we would appreciate this to be a lymphatic vessel.

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So in this one area of tumor, we have the characteristics that include its papillary configuration. Its cells are typical of serous carcinoma. Although we don't show it well, as you look at this you can see there's some cells with larger nuclei, and almost a solid mass of tumor. That's what we would use to use the distinction poorly differentiated. And then these are the papillary components shown right here.
So this first picture of this particular tumor shows a lot of its features in one very small field. But as you look through slides of this, you see those features repeatedly again and again and again. And this field was selected because it shows almost all the features (indicating).
Q. Okay. And I'm going to -- I appreciate that, and that helps me. I'm going to try -- since at times you were pointing to things that won't show up on the record here, let me just make sure that we've identified that.
At the bottom of Figure 1, there's

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something that looks like kind of a diagonal stripe.
A. Yeah.
Q. What is that again?
A. That's what we would call ovarian stroma, or ovarian tissue. That's not the tumor.
Q. Okay. And then you pointed to the tumor, which would be the kind of --
A. The darker material. You have black and white, I have a color. It's sort of -- on my color picture it's darker blue. It's what we call more hyperchromatic.
And then there are these very dark blue dots that are scattered throughout around the tissue, and those are the calcifications.
Q. The calcifications are the dark blue?
A. These really dark blue dots all throughout here, and there's some up here, and there's some over here in the tumor. These are calcifications (indicating).
And calcifications, and what are sometimes termed psammoma bodies, are common features of a serous carcinoma of the ovary.

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Q. Tell us what psammoma bodies are, please?
A. Psammoma bodies are thought to be tumor that undergoes necrosis that may outgrow its blood supply, and sort of drop off and form kind of a basophilic body where you can still see remnants of cells within it. And psammoma bodies are sort of -- are often seen in the tissue of ovarian cancer, as is calcification. And actually psammoma bodies and calcifications are part of the same spectrum, or thought to be part of the same spectrum where a psammoma body can eventually calcify.
So I guess if you were to define it, it would be defined as debris from the tumor, debris of cells of the tumor.
Q. And this Figure 1, is that a photo micrograph?
A. Yes.
Q. And how was that taken? What type of microscopy were you utilizing when you took this?
A. This was a light microscope where I have a field at 20X with a 20X objective plus

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10, so it's usually about 200, it's 200X, and I'm looking at this at that size. I didn't put a scale on this. Sometimes I would put a scale on this because I use the same microscope and have photographed a measurement scale and I can just relate the size of the pictures to it and the magnification, but I don't have one here. But I tell you that it's at 200X, which is using the 20X objective plus 10 -- or times 10 for the eyepiece objectives.
Q. Any reason you didn't put a scale on this one?
A. No.
Q. All right. After reviewing under light microscopy, did you move to polarized light?
A. That's correct.
Q. And explain the polarized light microscopy to us, please.
A. Polarized light microscopy takes a standard light microscope, and you usually turn up the light a little brighter, and then you put two sheets of basically a plastic material that has its fibers lined up in a way that's going

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one direction, and you put this above the light coming in, and then you have another below. So when you're looking at this, you can sort of start with them like this, and all the light comes through. As you turn these, you get to a point where very little light is coming through. But when you're -- when you have it set so that all the light is coming through in essentially a straight path that's polarized, what will happen is anything that is by refringent, like any particle that is foreign, any particle that has a different structure than tissue may show up as a brighter light, as bright light or what we call by refringence.
So that in this particular picture, we have a couple of --
Q. I'm sorry to interrupt. You're talking about Figure 2 now?
A. We're talking about Figure 2.
Q. Okay. Go ahead.
A. And in Figure 2 now, if we look at this you can see all the nucleus -- all the nuclei are in focus. And as you look at the material, the bright light material, you can see

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somewhat plate light material that is by refringent here. Over here you see the same sort of thing.

And in these smaller ones, you can see that there are some cellular material around it. In this one it doesn't have that characteristic (indicating).

Q. By "this one," I'm sorry --

A. These are the two that we're trying to illustrate here.

Q. I apologize for interrupting, when you were referring to "this," you were pointing to the birefringent particle that's below the arrow, correct?

A. Right.

Q. And then there's a smaller one above the arrow?

A. Well, actually there's three above the arrow, and three below the arrow in this particular field.

Q. Okay. I was clustering them, but okay. Fair enough.

A. And this picture is at 400X, which means I used the 40X objective on the microscope

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times 10 for the eyepiece, or the lens going to the camera.

Q. And what is the location of Figure 2? Is it located within Figure 1?

A. No. They're actually from two different slides.

Q. Okay.

A. Figure 1 is from slide 8716R, and this is from slide 8716N.

Q. Got you.

Okay. And what is the significance of the birefringent material that's pictured in Figure 2; the fact that it's foreign material?

A. It's foreign material. It's in the same plane of focus as the tissue, so what that would mean is that this is not laid on top of the tissue, that it is in -- it is within the tissue to start with.

The other thing is that it's actually within a tissue space. It's not out on the surface.

And then the other thing is that in looking carefully at the upper particulates, they look like they have a bit of tissue

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surrounding them. So it's not really tissue, it's probably fibrin. But there's some pink material around it. I realize this is kind of a dark picture, but I think you can appreciate -- you may not appreciate that in your black and white picture. But in this picture you can see that there's a little bit of red around the edges of those particles. These do not have any.

Q. Okay. And when you say there's a little bit of red around those particles, you're talking about the ones that are --

A. Uppers one.

Q. The upper arrow?

A. The upper arrow pointing to them.

Q. And the ones that don't are below?

A. Are below.

Q. What, again, is the significance of that red in the part above the arrow?

A. Well, I think the significance of the red here is that, in fact, there's tissue, some tissue reaction to this particle that it's coated with -- it may be just coated with fibrin, or it may be coated with some protein

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secretion from the tumor. But the fact is that it's definitely not added extraneously in a laboratory. This was part of the tissue as it came from the patient.

Q. And again, as we talked about earlier, you can't say when this material got into Ms. Blaes's body?

A. No.

Q. All right. After doing the polarized light microscopy, what did you do next?

A. Well, next I asked for the blocks.

Q. Okay.

A. And after doing this study of all the slides, I thought the ones that had the most convincing talc or most convincing foreign material by polarized light studies were blocks M, N, O, and P. And so we asked for those blocks, and, in fact, they gave us all the blocks.

Sometimes, rather than just trying to figure out which block you want, they send them all to you. Sometimes they give you one block as if it were a piece of gold, a large piece of gold. So in this case we received blocks.

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Q. So what you indicated is that you requested the blocks that had what you described as the most convincing talc or foreign material in them based on your light microscopy?
A. Yes.
Q. And once you obtained the blocks, why don't you, in as much detail as you can just so I understand it, tell me what you did upon receipt of the tissue blocks, and how you get them prepared for SEM, etcetera.
A. Okay. I'm going to give you some historical background here.
Q. Good.
A. In the paper that we published in the Berg case, we cut the -- we cut sections and placed them onto carbon disks. This is an accepted way to do this. This was the way that I learned from John Shelburne to do this, and others have done this in the past. And this is the way we did it.
When we transferred those disks to the defense in the Berg case, they were -- it was important to manage those very carefully because it was a thin slice, and some of them started to

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lift off, and there was a lot of contention that it could not be maintained, that these were uninterpretable. And this is fine for laboratory work, but we found that these carbon disks don't hold the tissue all that well, and that they do tend to come up, and it's a problem. So we've used glue and other things in the past.
There have been in recent years some new approaches to this, and the new approach is that what you do, rather than taking a slice off of the block and transferring it to a carbon disk, you can't put it on a slide because the slide has silicon and glass and then you would get -- you might get the signal from that, so that's why it was always put on carbon.
But the new approach has been to take a whole block and put it in the scanning electron microscope. Now, why you couldn't do this in the past is because if you put it into a conventional scanning electron microscope, the temperature would rise in the specimen chamber, you would vaporize with the beam the paraffin and essentially contaminate your microscope. So

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people didn't want to do this. This was not an accepted technique.
But in the end of the last century, there were some developments in scanning electron microscopy that came about, and one of them was the development of a microscope called an environmental scanning electron microscope, and what this allowed you to do was not only to put a paraffin block in there, but you could put wet tissue into a scanning electron microscope, and this had a differential system of pressure that allowed you to pressurize the specimen chamber so that it wasn't -- you could keep a wet specimen in there, because before this it was unheard of. You also didn't need to coat the specimen because you could change the pressure, lower -- and raise the pressure in the specimen chamber while keeping the electron beam under vacuum. So this was a big advance. And environmental scanning EM was very expensive because it had all these advances.
A number of companies, in fact almost all the scanning electron microscopy companies, came out with a device that wasn't quite the

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environmental SEM, but was better, and allowed you to do this kind of thing, and that was called a variable pressure scanning EM. The microscope that we have in our lab has this variable pressure capability, and so instead of doing it the way we did it before where we took the tissue, put it on the carbon disk, and essentially melted the paraffin out of it and used it, we could do away with that step so it didn't have to go back to the laboratory, we could handle it all ourself in the lab.
And so what we do is we take the block, we have a cleaned area, we have a cleaned microtome, we put in a new clean blade, and we take a couple of cuts off the surface of the block. That gets rid of any contamination that previously might have been added to the tissue, and we're only into the block.
Now, by cutting fresh sections we've also exposed new tissue, and so we can then put this on to a chalk that holds it and put it directly into our scanning electron microscope. So now we're taking the paraffin blocks and putting it in, so a lawyer doesn't have to come

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from Texas, or wherever, to come and take the specimens from my hands to her hands to make sure that these are handled properly, and still not be, but now we have the whole block.

And so all we do is after we've done the studies in the microscope, we put it back in a sealed container and we can hand it to you, you can give it to your expert, you can put -- your expert can put it in the microscope himself if he has a variable pressure electron microscope and do these studies, or confirm our studies, or just look at our data, whatever he wants to do.

Q. Okay. Let me ask you -- that may be a new record for longest answer to a question I've ever asked in a deposition, but I appreciate it.

A. But it was all relevant.

Q. I understand. I'm not complaining about it.

A. Okay.

Q. Taking some of that, your procedure and your process for reviewing this tissue was different in the Blaes case than it was in the Berg case, as you've described?

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A. That's correct.

Q. And is it correct -- do I understand you correctly that that was done in order to preserve the sample better, perhaps, than it was done in Berg?

A. Exactly.

Q. Now, if we go back and we take this case out of litigation, and we're in the pathology department at a hospital, is there any reason for the hospital and the doctors who are treating Ms. Blaes to utilize a scanning electron microscope in order to analyze this tissue?

A. Most hospitals don't have them. Even Brigham & Women's Hospital doesn't have its own scanning electron microscope, they have a transmission electron microscope that they use in the pathology department. But the scanning electron microscope is in my lab, and so the department uses it, or I use it for the department.

Q. Putting you in your position, what reasons are there, if at all, if you're treating a patient, the case is not in litigation,

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treating a patient, what reasons are there for you using a scanning electron microscope in the pathological analysis of patients' tissue in a hospital setting?

A. Patient has a foreign -- a bit of foreign material in their breast, and they know that there was a wire put in there clinically, but they haven't been able to -- they found this material and they took it out, it's still not clear whether this is the wire that was put there, and that's what they need to find. They give me that wire, and I can analyze it and say, yes, this little bit of material that is now broken up into little pieces is the wire that you put there. That's one example. I can go on with many more. But there's reason to identify foreign material in tissues.

Another instance, a patient has granulomatous disease in a thoracic lymph node. The granulomatous disease has a lot of what looks like foreign material in it. And the question is does this patient have sarcoidosis which typically has calcification, or did he get exposed in his job and it's the job that's

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creating the granulomas, so maybe he should stop doing that kind of work. And so they ask me to identify the material in the job. Is it the metals that he's involved in working with in his job, or is this all calcium and this is just another case of sarcoidosis, and we're chasing -- this guy doesn't have to quit his job.

So I look at the tissue, I find -- almost all the particulate that I find in there is calcium, and the granulomas with the calcium are more likely sarcoidosis than a reaction to any foreign material that he's getting in his job.

These are the kinds of studies that we do. And people -- and other pathologists from outside hospitals send me material for these kinds of studies, we do it within the context of our own hospital.

Q. All right.

A. And these are usually reported in the clinical record as part of the pathology report, and it's not -- and these are not for litigation, these are for management of the patient.

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Q. Okay. Again going back to the report, you got -- all blocks were provided by St. Mary's Health Center?
A. Yes.
Q. And then you say "For Study by SEM, the blocks were used as described by Abraham and Thackral" -- T-H-A-C-K-R-A-L -- "for assessment of particulate materials in paraffin imbedded tissue," correct?
A. That's correct.
Q. And the Abraham and Thackral paper that's being described there had to do with gadolinium, right?
A. That's correct. But it was a general methodology for identifying material in tissue using the paraffin block rather than a section of the tissue.
As far as I know, I mean this has been a technique that's been in development, that's, as far as I know, the first publication that used it as a clinical -- as part of a clinical study. And so we moved to this approach.
Q. And you've moved to this approach, is that the approach that's generally accepted for

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microscopists like yourself?
A. Yes, if you have the variable pressure SEM, that's the way you do it.
Q. You mentioned earlier a transmission -- a TEM, correct?
A. Yes.
Q. Do you all have that in your lab?
A. Not anymore. We had a microscope that did electron energy loss microscopy and was a high quality instrument, but it was a high quality instrument in the '90s, not currently, so we actually sold it back to Zyse a couple of years ago when we renovated our lab.
And Harvard has a center for microscopy over in Cambridge, and they have the latest energy loss spectroscopy microscopes, so if we have a reason to use it, we go there.
We've kept the SEM because it was the -- and if we need routine transmission electron microscopy, that's available in Brigham & Women's Hospital pathology department. So we had no reason to continue it.
But the scanning EM, we're one of the very few in the medical area, and I get requests

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from all over the medical area, people needing scanning EM services, and this is one of the things we do. And we have the instrumentation.
Q. Going on to the report, you indicate "The blocks were received in a plastic Ziploc bag," correct?
A. Yes.
Q. Who bagged them in the Ziploc bag? Was that at St. Mary's?
A. Yes. And they're still in that Ziploc bag.
Q. Do you have any knowledge as to whether talc was ever used in Ziploc bags?
A. No. Doesn't matter.
Q. You said "the blocks were handled using our standard protocol to assure no contamination of the blocks in our laboratory." Correct?
A. Correct.
Q. And then you go on to describe the protocol.
A. Yes.
Q. "Handling the blocks are particle free gloves" --

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A. Yes.
Q. -- "on pre-cleaned surfaces," right?
A. Yes.
Q. "And washing the blocks three times with double filtered deionized water to remove any impurities on the surface of the tissue," correct?
A. That's correct.
Q. Do you know if that water is particulate-free?
A. It absolutely is.
Q. How do you know that?
A. Because we filtered it, we look at it, we look at a dried spot, you don't see anything.
Q. And how small are the particulates that the filtering system you all have -- could particulates get through the filtering system, in other words?
A. Nanoparticles might, but anything that would be visible from our use wouldn't.
Q. "Then air drying the freshly washed blocks in a covered container so that no air particulate contaminates the washed section"?
A. That's correct.

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Q. Do you guys utilize a pressure hood to do any of these actions, or a hood of any kind?
A. For some of it. We don't cut them in a hood, but other than that, a lot of it is handled in a hood.
So then the next is "the block is sectioned to remove the previously exposed block surface."
Q. And you use a machine called a microtome?
A. That's correct. And we usually -- the microtome cuts anywhere from 4 to 7-micron sections, and we usually take 2 or 3-micron sections -- 7-micron sections off.
Q. Okay. And then you wash it again in double filtered deionized water. Then you note "The sample is then sputter coated with Au." That's gold, right?
A. Yeah.
Q. Can you explain why you do that?
A. Well, there's two reasons. One is that it cuts down charging so that you don't get a lot of reflection of electrons, but the fact is the change in pressure of the microscope also

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allows you to get around that.
But the other thing is that once you do this, and this is all in sealed and under vacuum, if you then should happen to find a particle on there that isn't coated with gold, you know that's a contamination. So even though -- it's sort of the final check that anything we're identifying is not part of any contamination. So just taking the block from our sealed container and putting it into the microscope, if for some reason out of the air fell a talc particle, we would know it was a contamination because it wouldn't be coated with gold. So it's just -- for us it's another step to show that we're not dealing with contamination.
Q. And then you describe the equipment that you utilized. You talk about this Oxford instrument software being Aztec 2.3?
A. Yeah.
Q. Is that the most updated software for this instrument?
A. Yeah. We have our Zyse with the variable pressure and Oxford system that we used

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in the Berg case. This is -- this Hitachi system has a field emission gun, which is a better gun system. And the Oxford system is essentially the same, but it's newer, and it's an updated model. This instrument was just purchased new this year.
Q. And then you mentioned the backscatter mode. Tell us what that means.
A. Okay. There are several modes in the electron -- in the scanning electron microscope that you can use to get images, and the typical scanning electron microscopy image is done in what's called secondary electrons. So the electrons are bouncing off the surface, and they're coming off at a certain angle, and you have a detector that detects them in the secondary electrons.
The backscattered electrons are collected in another detector in the electron microscope. And what they do is if you're looking at something that is all carbonaceous, but you have a -- but you're trying to find a particle, it works almost like polarized light with a light microscope, because the particulate

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material, that's going to have some crystalline as well as chemical structure that the backscatter mode will detect, and so you end up with an image that is quite dark with a really bright spot that's the particle. So it can allow you to see the particles a whole lot easier, and detect them, and allows you to work a little faster.
Q. And looking at Figure 4, it says "SEM of talc particle in the tissue." Tell us what that is, other than what it already tells us.
A. Okay. In looking at this, this is a particle that we see, it's in a space that very well could be either a lymphatic space, it's hard to tell on SEM, or it could be a tumor space that's similar to what we're looking at in Figure 2. I can't be sure in looking at this, but it's clearly a particle. And then the Figure 5 spectrum is the spectrum of the particle in Figure 4.
And so that's why I can say it's a talc particle, because we've done the spectrum below and reported it below.
Q. Which you indicated, based on your

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data, is consistent with talc?
A. Yes. So I've gone through and told you how the microscope is set up for this.
Q. Let me ask you, it's on Page 2 of your report, and we referred to this before, I just want to make sure I'm clear, it says "All blocks were provided, but those studied included S08-8716 M, N, O, and P," correct?
A. That's correct.
Q. Were those all of the blocks that were studied? It says the studies included those, I just want to make sure those are all the --
A. Actually, I believe only N and P were studies with scanning EM. You can see the number of hours put into this. And we find it, you know, we quantify a block, and then you have to say, you know, how many hours do you want to put into this, how much do you want to find. And finding what we found is, in our view, quite significant, so we did not do more.
Q. Looking at the last page of your report, it says "In the study of blocks from Ms. Blaes, a total of 368 particles were found and analyzed," correct?

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A. That's right.
Q. And then you go on to talk about tissues that may have carbonaceous material, or sodium, phosphorus and calcium may be found, but that those would be endogenous to the tissue in this type of study?
A. That's correct. That goes back to this -- especially this calcium that I'm showing you that we can see in the light microscope, and it's all over the place in the electron microscope. And so as we are doing these, we can look at particles, but at the same time we don't want to say, okay, I'm going to just cherry-pick these particles because we think that's what they ought to look like. We're looking at all the particles that come up.
And so in the areas that we've studied here, we ended up with 368 particles, but since we've analyzed them we can tell you what their composition is, and of those, a lot of them are really endogenous. And so you can really discard those, but at the same time it's part of the work that we do, so, you know, we end up reporting them.

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Q. All right. So you got 140 that had elemental composition indicative of foreign material, correct?
A. That's right.
Q. And tell me what you mean by elemental composition indicative of foreign material?
A. For example, silica, titanium, aluminum, these are all more likely to be foreign rather than endogenous. And so if you can get talc into the tissues, there's no reason why you can't expect to have some dirt in there as well. I mean that's the way it is. And that's what we essentially find in every case, that you have a certain number that we can identify as talc, we have a certain number that have other composition.
Q. And with regard to the 140 foreign particles, did you analyze what they were?
A. Yep.
Q. What were they? You say a variety of materials.
A. They're all on here. You can look at them.
Q. I can't wait.

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A. Have fun.
Q. Can you recall what types of materials you identified from the foreign material?
A. Yeah. If it's aluminum and silicon, it's not talc, but it's foreign material. You shouldn't have aluminum silicon particles in your tissue unless it's coming from the outside. And surprisingly, there's a lot of that in our tissues.
Q. A lot of materials coming from the outside?
A. There is materials coming from the outside.
Q. Again, through the means that we talked about earlier, inhalation, right?
A. Well, I think we're really concentrating on perineal.
Q. Okay.
A. You go to the beach, you get sand in your bathing suit, maybe that's where some of it's coming from.
Q. But you can get foreign materials other than talc in your body through other means, such as inhalation?

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A. You can.
Q. Ingestion?
A. Yeah.
Q. Actually you can even get it through the skin, correct?
A. Well, especially if you have openings in the skin.
Q. All right. You said that 33 of these particles were identified as having magnesium and silicon in the proper ratio for identification of talc, but with other elements present, usually large amounts of calcium, correct?
A. Yes.
Q. Did you identify what those were, those particles were?
A. They're all in here. And I have examples in the other thing that I provided to you.
Q. Why don't we pull that out. Is that what we're talking about?
A. Yes.
Q. Why don't you help me cross-reference that now with that comment.

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A. So this is Exhibit 5. And in Exhibit 5 I have just some of the preparative steps laid out, and I have bigger pictures of the block mount. And then I have larger pictures of some of the talc. And so that I have, actually, all six of the talc particles that are in the tissue with pictures of them in the context of the tissue, as well as the spectrum. And then I have some examples of the magnesium silicate signal with other material.

And here's an example where we actually have a lot of sodium chloride in the field, and whether that is -- in that -- and so we have a talc signal, but yet the sodium chloride signal is very large.
Q. Which figure?
A. And there's also calcium and potassium there.
Q. Why don't you identify the figure you're talking about, or the page from the exhibit?
A. It's not -- it's just with a heading "strong magnesium signal/magnesium silicate signal with sodium chloride."

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Q. Okay. Thanks.
A. Okay. And then here's another one where we have, again, the magnesium silicate signal that's again in the ratio, but we have kind of an overwhelming calcium phosphorous signal.

And then we have another one that again has a magnesium/silicate signal that's very weak, but there's a whole lot of other things, including a big carbon signal, a big iron signal, and others. So we have a lot of different things in here.

Then here's another one with a relatively weak, but similar -- but appropriate ratio signal of magnesium/silicate with a big calcium phosphorous signal.
Q. And that's the last page of that?
A. That's the last page.

So we've identified those, so we have our specific six particles that are talc alone, we have all these other particles that have various other components with them. So what this does is provide more examples. And if you want to see every one out of the 368, they're on

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the disk.
Q. And with regard to the other foreign materials other than what you identified as talc, were you able to rule those out as potential causes for Ms. Blaes's ovarian cancer?
A. There's no known association for the others.
Q. And you referred a number of times -- we talked about earlier a little bit, I just want to make sure I'm clear, you referred to six of these particles identified as only having magnesium, silicon, and oxygen in the proportions expected with talc. What are those proportions?
A. Well, it's in this range where by weight it's like 11-to-10, and by count it's a ratio of about 1-to-1.3.
Q. 1-to-1.3.

With regard to the 140 foreign particles other than the talc, you obviously don't specifically know how those got into her body, correct?
A. That's correct.
Q. Then the next paragraph talks about

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the fact that this technique used here -- do you need some more water or something? Are you okay?
A. I'm okay.
Q. We're probably going to break maybe in ten minutes or so.
A. Okay.
Q. It says "The technique used here examines an extremely small volume of tissue." And you say "Comparable studies have been done with asbestos fibers in tissue sections" -- citing to Roggli -- "and the finding of one fiber in a tissue section comparable to the amount of tissue studied here would indicate at least 100 fibers per gram of tissue which is indicative of a substantial exposure."
I guess my question is, that 100 fibers per gram of tissue there is referring to the Roggli study, correct?
A. Yes.
Q. Then you go on and say "If similar approaches were applied to the findings of this study" -- meaning the study you did of Ms. Blaes's tissue, correct?

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A. That's correct.
Q. -- "indications are that substantial amounts of talc were present in this patient," correct?
A. That's correct.
Q. And I want to understand your basis for that statement. Obviously you've cited to the Roggli studies, correct?
A. Yes.
Q. Those have to do with asbestos fibers, correct?
A. That's correct.
Q. And you yourself in your paper that we talked about earlier that you co-authored along with Dr. Cramer said that asbestos is structurally quite different than talc, correct?
A. That's correct.
Q. And that structural difference could significantly impact this analysis in terms of extrapolating from one tissue to X particles?
A. Only in a positive way, that is -- okay, let's talk about these studies for a second.
The Roggli study essentially was

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looking at glass slides, and they had glass slides, and they had tissue digest of lung tissue. And what they did was they determined how many they could count in the slide, and what that translated to in terms of digestion count. And what they found was that if you could see one asbestos fiber in a 2-by-2 centimeter square piece of tissue, and actually we're looking at roughly about that size here in this case, that this was very significant. Now, it's true an asbestos fiber is long, but we're talking about hits based on a tissue slice.
Now, the other thing that's important in this is the depth. And so when you're talking about a histologic section on a slide, you're talking about something that's somewhere between 4 and 7-microns in thickness, and so the thickness comes into play with this. And if you think about the weight of that tissue that's on a slide, it's minuscule compared to the whole volume of tissue, so it's actually -- a slide is a very small sample of tissue.
Now, even though we're looking at the whole block here, the depth to which we go into

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the block with the scanning EM is very shallow. And so that's one of the points that I make in this, is that when we're looking at this with SEM, the electron beam penetration is only 2 and a half micrometers. So we're really very, very shallow into the tissue in order to see this.
Now, the same would be true if we cut a 7-micron slice and put it on the wafer, we're still looking very superficially depth-wise. That's why the relationship to the Roggli study is appropriate for this, because what it does is it's looking for hits of foreign material in a slide which is, say, 4-microns thick, and with asbestos and asbestos bodies you can see those a little better. Here we're only going 2 and a half microns deep in terms of what our scanning electron microscope beam can penetrate and see. And so it's just making the point that we've studied a very, very small amount of tissue, and that's the point of that.
And so if you think of, you know, the ovary, and in this case probably being around this big or so, then -- and in 3 dimensions, we've looked at an exceedingly tiny fraction of

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that mass.
Q. And if I understand you correctly, you're trying to make the point that we've studied a tiny amount of the mass, right?
A. Yes.
Q. You're not necessarily trying to extrapolate from the asbestos study and go with a 1-to-100 fiber, or particle ratio, right?
MR. SMITH: Object to form.
A. No. Well, I'm using the Roggli study as the basis of doing that kind of extrapolation. And what's more likely than not in this instance is that there are many, many more particles than what Roggli found in these kinds of studies. So if he found 100 -- if he saw one fiber and could extrapolate that to 100, it's more likely that finding six particles in this instance probably extrapolates to something like 6,000 per gram or per milligram, because we're looking at micrograms of tissue.
BY MR. FERGUSON:
Q. Has anyone done the Roggli type of analysis, to your knowledge, with talc particles?

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A. No.
Q. So you're extrapolating from a study done regarding a substance that is structurally quite different than talc, correct?
A. It's true an asbestos fiber has more chance of being seen because of the length of the asbestos fiber. But at the same time, the talc has much less chance of being seen, and so that's why the numbers that we find are more significant, in my view.
MR. FERGUSON: Do you want to go ahead and take a break?
MR. SMITH: Yes, sir.
(Whereupon, a luncheon recess was taken at 12:07 p.m.)

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AFTERNOON SESSION
1:22 O'CLOCK P.M.

BY MR. FERGUSON:
Q. Doctor, we've taken a lunch break. Are you ready to proceed?
A. Yes.
Q. One thing that -- and I know I've asked you about this before, but I'm just not totally clear, which is the conclusion in your report that "It can be stated to a reasonable degree of medical certainty that the talc found in this case is evidence for a causal link between the presence of talc and the development of this patient's ovarian cancer." And I guess, does that mean that your opinion is that this -- finding talc in Ms. Blaes's ovary is evidence that supports that, or does that prove the causal link, I think is my question.
A. I think to a reasonable degree of medical certainty, based on the body of knowledge, the epidemiology, and finding talc in the ovary with cancer links the presence of talc with the development of cancer in this patient.

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Q. And --
A. That's not a short answer. I've got to get that shorter.
Q. You're fine. Answer how you need to.
So would you agree that the mere fact that finding a particle of foreign material next to or attached to a cancerous tumor does not automatically mean that particle causes the tumor?
A. With no other knowledge in a case, for example the reason that not saying that aluminum silicate particle causes the tumor, is because there's no body of knowledge to support that, whereas with talc there's a body of knowledge that supports the conclusion that talc is associated, and the next step is that, in fact, we find talc is at the site of the cancer, and that strengthens that association.
Q. So I think going back to my question, not even talking about what particle it is, the mere fact that you find a particle of material next to or attached to a tumor does not automatically mean that the particle caused the tumor, correct?

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A. That's correct.
Q. And it doesn't automatically lead you to the conclusion, okay, I've got a particle and I've got a tumor, therefore the particle caused the tumor?
A. That's correct.
Q. All right. What you're saying is finding the particle in combination with what you describe as the body of literature is what leads you to that conclusion?
A. That's correct.
Q. And I think we covered earlier that you're not an epidemiologist, correct?
A. That's correct.
Q. You're not in a position of being the expert who can analyze the strength and validity of those epidemiological studies in this regard, correct?
A. No, I'm a scientist that reads the epidemiological literature all the time, so that I can read this with a level of knowledge that allows me to accept or reject this as a body of knowledge that is worthy of consideration.
Q. And you're considering it, right?

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It's worthy of consideration, and you're considering this issue?
MR. SMITH: Object to form.
A. It's something that I would apply.
BY MR. FERGUSON:
Q. I suppose what I'm trying to establish is that you're primarily relying on others, such as Dr. Cramer, to analyze the body of epidemiological literature in this case in order to make your link with the particle and the epidemiological body of knowledge, correct?
A. There's a body of knowledge in the scientific literature, and in my -- in what I do as part of that is to find the material at the site of the tumor.
Q. And that was your charge in this case, was to see if there were particles of talc in or around the tumor, correct?
A. That's correct.
Q. And if we look at your report, that's what your report focuses on, correct?
A. That's correct.
Q. Your report, maybe unlike some other reports in this case, did not focus on analyzing

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the epidemiological body of literature because that wasn't your charge, correct?
A. That's correct.
Q. I always think of things over lunch, so I'm skipping around a little bit.
Looking at Exhibit 6, which is the invoice that you brought for this case, there are charges of $11,300 -- I guess I should read it more carefully. There's a total billing of $27,600, correct?
A. That's correct.
Q. And there were a couple of payments, leaving an amount due, at least as of the time this was produced, of $11,300, correct?
A. That's correct.
Q. With regard to the $27,600 that is due and owing here, and either has or will be paid, is that something that goes to you personally, Dr. Godleski, or does it go to some other entity?
A. This bill goes to my lab.
Q. So of the bill we're looking at --
A. I'm not doing that many hours of electron microscopy all by myself.

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Q. Okay. And fair enough. So maybe I should have done this earlier, because I was not looking at this perhaps right.
The hours here are not all your hours?
A. Well, they are hours that I've in some way participated in either overseeing or looking with the person, but not necessarily looking continuously.
Q. For example, the January 23, 2015 entry is two hours, cost per hour is stated to be $400, for a total of $800?
A. That's my work.
Q. And that's your work?
A. Yes.
Q. Below that it says "Preparation of blocks for SEM study," and it's two hours at $100 per hour. So that, I assume, would not be your work?
A. That's correct.
Q. Not that you didn't oversee it, I'm not trying to imply anything like that.
A. Right.
Q. So as we look down this bill in the Blaes case, it appears that a number of the

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costs per hour, most of the costs per hour are less than 400, and then there are, I don't know, five or six or seven entries which are $400 an hour, correct?
A. That's correct.
Q. Am I correct, then, that the $400 billing rate is yours?
A. That's correct.
Q. And we can assume that those hours were actually spent by you, correct?
A. Yeah.
Q. And the other hours were spent by others under your supervision?
A. That's correct. And in most instances I'm there or looking in, but not running the microscope myself all the time.
Q. All right. So with regard to the -- let's take the entries, and it looks like two hours, five hours, three hours, and two hours, I think that's 12 hours, if my math is correct, at $400 an hour, that's all your work? That's all your work, not that you don't have other work in other parts, right?
A. Mm-hmm.

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Q. Correct?
A. That's correct.
Q. What happens to that, I think, $4,800 -- am I doing that right? -- does that money go to you, Dr. Godleski, or does that go to the lab?
A. To the lab. That goes to the lab.
Q. And then the other items for work by others, does that go to the lab as well?
A. Yes, to pay those others.
Q. Okay. Are there payments made to you as an individual, Dr. Godleski, for your work on the Blaes case?
A. Not yet.
Q. Not yet. And tell me what type of work you would be paid for directly?
A. Today you'll pay me directly.
Q. So, for example, the "preparation of report" and "finalize report" entries which total five hours here, even those would go to the lab rather than you?
A. Yes. You can see who the check is to be made out to.
Q. And you're looking at -- you pointed

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out the second page of Exhibit 6 which said "Please make payment to president and fellows of Harvard University," and send payment to an individual named Carlos Silva?
A. That's correct.
Q. So if, for example, you are working on another case next month, would the billing be similar? For example, that the work done in the lab would be paid to the lab, and the work done sitting in a deposition or presumably trial testimony would be paid to you personally?
A. That's correct.
Q. In the Harvard system, and I'm sure it's very simple to understand, if you get a grant of some kind that is your -- that your work brought in the grant, do you get some kind of credit for that in the system somehow as far as your seniority or your pay or anything?
A. No.
Q. And probably that's so complicated I wouldn't even want to get into it.
Does this work brought in through your efforts that is being paid to the lab, the 27,600, is that treated much like a grant, in

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that it's money that you brought in due to your efforts to the lab?
A. Yes.
Q. And my question really is, do you get some sort of either direct or indirect benefit by having this money paid to your lab due to your work in this case?
A. Well, my -- as you've already pointed out, that I will be billing directly for testimony, and at the same time my lab gets money for this. Our billing charges, I get requests for those weekly, bi-weekly, you know, for sure at least once a month that somebody is inquiring about availability of support from electron microscopy, and what they get is the billing information that I gave you. And usually what we require is that they have a purchase order, usually not to exceed 3,000, 5,000, depending on what the project is. And we work off that project -- we work off that purchase order, and they are billed. And the bill -- the money comes back into the lab. It's what's called a billing account, and a lot of laboratories here have them. It's a standard

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procedure.
Q. And again, I'm not trying to beat this topic too badly, but what I'm trying to understand is, does it benefit you as far as your salary, benefits, or seniority at Harvard to have your lab bring in money in the form of these payments in these litigated cases?
A. Yes.
Q. We were talking before lunch about the fact that you were -- and I don't want to go back through it all, the testimony is what it is, but having to do with the Roggli study with regard to asbestos fibers and extrapolating out how many fibers might be in a particular area, and you talked about that in relationship to talc, correct?
A. Yes.
Q. Okay. I don't want to re-ask all those questions.
Have you ever seen an article by Henderson and others from 1971 called "Talc and Carcinoma of the Ovary and Cervix"? Did you ever see this article before?

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(Whereupon, Godleski Exhibit Number 16, Henderson, et al article titled Talc and Carcinoma of the Ovary and Cervix, was marked for identification.)
BY MR. FERGUSON:
Q. It's been around a while.
A. I don't recall if I've seen it or not.
Q. Okay. I just want to ask you about one sentence in it. Look at Page 271, and discussing the presence of talc in the tissue of the tumors, it says "The talc particles were found localized deep within tumor tissues, and not universally dispersed throughout the tumor."
A. Okay.
Q. Page 271, the right-hand column, the first full paragraph, about halfway. Do you see, start "The talc particles were found localized deep within tumor tissues, and not universally dispersed throughout the tumor."
Do you see that?
A. Could you give me your copy, or a better copy? See, this is unreadable.
Q. I will absolutely. I'm going to

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change this exhibit sticker. I noticed when I was copying this yesterday that our toner was low, so my apologies, my fault. I don't know how to change the toner.
Okay. Some things are a little harder to read, but I think this one is easy enough to read. On Page 271, the right-hand column.
A. The right-hand column. Okay.
Q. The first full paragraph. And you see seven lines down the sentence starting "The talc particles."
A. Okay.
Q. It says "The talc particles were found localized deep within tumor tissues, and not universally dispersed throughout the tumor," correct?
A. Yes.
Q. Would you agree that talc particles found in a tumor would be found localized deep within the tumor tissues, and would not be universally dispersed throughout the tumor?
A. I guess that's a reasonable statement.
Q. You're allowed to look at that, but I think I'm done with that.

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A. Okay.
Q. I don't want to interrupt your reading pleasure.
With regard to the talc particles that you saw in the tissue that you analyzed for Ms. Blaes, did you see inflammation or granulomas surrounding the top particles?
A. No.
Q. Is that significant to you at all, that there were not granulomas or inflammation surrounding the particles?
A. No.
Q. With regard to your opinion in this case -- well, you made reference to the body of literature, and I think you've indicated to us what you think the body of literature regarding talc and ovarian cancer is, correct?
A. Yes.
Q. If, in fact, Dr. Cramer in his articles regarding talc and ovarian cancer, and the fact that talc causes ovarian cancer, if he's wrong, then your opinion is incorrect, too, right?
MR. SMITH: Object to form.

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A. Well, you're proposing a hypothetical. And scientifically you'd look at the literature, and if you have multiple people finding essentially the same thing, you know, it's hard to deal with a hypothetical that says, well, this may be totally wrong.
BY MR. FERGUSON:
Q. Okay. So you disagree, you think it's not wrong? The hypothesis that talc causes ovarian cancer is not wrong in your opinion?
A. That's correct.
Q. You realize there are studies and authors who disagree with that conclusion, correct?
A. Yeah, there have been some studies that have failed to find the exact same thing.
Q. And there are governmental, or international, or quasi-governmental bodies that have concluded otherwise as well, correct?
MR. SMITH: Object to form.
A. Well, IARC lists it as a carcinogen.
BY MR. FERGUSON:
Q. Does it? What does IARC say?
A. It's a B.

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Q. It's what?
A. It is on their list, and I think, as they define it, it's in the B category.
Q. It's in 2B, correct?
A. 2B.
Q. That's a possible carcinogen, correct?
A. That's correct. But it's listed.
Q. It's listed as a possible carcinogen?
A. It's listed.
Q. You're not saying it's possible, right? You're giving an opinion that more likely than not it is a carcinogen?
A. We know it's associated.
Q. You understand that the IARC monograph says that Group 2B, as we talked about, is possibly carcinogenic to humans, correct?
A. That's correct.
Q. They have other groups that are probably carcinogenic, correct?
A. Yes.
Q. Or is carcinogenic even, correct?
A. Mm-hmm.
Q. Yes?
A. Yes.

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Q. And you understand that under the IARC definitions, the group 2B is a category that's used for agents for which there is limited evidence of carcinogenicity in humans, and less than sufficient evidence of carcinogenicity in experimental animals, or inadequate evidence of carcinogenicity in humans but sufficient evidence of carcinogenicity in experimental animals. Is that your understanding?
A. That's correct.
Q. So do you agree that there is either limited evidence of carcinogenicity in humans, or inadequate evidence of carcinogenicity in humans?
A. I think there's adequate. I think the fact that they're acknowledging that it can be a carcinogen puts it into that category.
Q. So did you say there is adequate evidence of carcinogenicity?
A. I believe, in my opinion, there's adequate.
Q. But --
A. And to the extent that they've listed it, it's something that they're identifying.

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Q. But IARC doesn't say there's adequate evidence in humans, does it?
A. Not by that definition.
Q. And that definition is right from the IARC monograph, correct?
A. Mm-hmm.
Q. Yes?
A. Yes.
Q. Were you aware that there had been citizens' petitions filed with the FDA regarding a request to place warnings on talc regarding ovarian cancer?
A. I may have heard something of that effect.
Q. Are you aware that the FDA has denied those petitions?
MR. SMITH: Object to form.
A. No, I don't know what the current status of all those petitions are.
BY MR. FERGUSON:
Q. Okay.
A. Some have been denied.
Q. Were you aware the FDA conducted an exploratory survey of currently marketed

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cosmetic grade raw material talc and finished cosmetic products containing talc? Are you aware the FDA did a survey?
A. No.
Q. Were you aware that FDA concluded that the evidence regarding talc and ovarian cancer was insufficient to require a definitive warning as the movants were seeking there?
A. I know that they have not required a warning.
Q. Are you aware that the National Cancer Institute just this year made a finding that the evidence is inadequate to determine whether perineal talc exposure is associated with an increased risk of ovarian cancer?
A. Yes.
Q. You disagree with that conclusion, correct?
A. Yes.
Q. And National Cancer Institute also said that results from case control and cohort studies are inconsistent. Would you agree with that?
A. Not entirely. I think there are one

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or two studies that would go in that direction, and a body of many studies that shows the consistency. But that's what that body concluded, so...
Q. So again, you disagree with the National Cancer Institute with regard to their finding, correct?
A. Yes. That's not my opinion.
Q. And you disagree with IARC to a degree, because your opinion is there's adequate evidence in humans?
A. Correct.
Q. And you disagree with the FDA's denial of the petition to warn about talc and ovarian cancer, correct?
A. I think we've established that.
Q. Okay. Did you ever hear of the Cancer Council of Western Australia?
A. No.
Q. I'll represent it's a governmental organization in Western Australia.

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(Whereupon, Godleski Exhibit Number 17, Document titled Cancer Myths, Talcum Powder and Cancer, from the Cancer Council of Western Australia, was marked for identification.)
BY MR. FERGUSON:
Q. Let me ask you about it. Let me show you Exhibit 17.
MR. FERGUSON: I think you got your souvenir copy of this one, but here's another one (handing).
BY MR. FERGUSON:
Q. Do you see up in the upper left-hand corner it says Cancer Council, Western Australia?
A. Yes.
Q. And it's entitled "Cancer Myths"?
A. Yes.
Q. And it says "Talcum Powder and Cancer," correct?
A. Yes.
Q. And the very last sentence of the summary there says "The current evidence is inconsistent and insufficient to conclude that

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the use of talcum powder on the external genitals increases the risk of cancer, specifically ovarian cancer."
A. That's what it says.
Q. And do you agree that the hypothesis that talcum powder on the external genitals increases the risk of cancer is a cancer myth?
A. No.
Q. So you disagree with the Cancer Council of Western Australia, too, right?
A. Yes.
Q. Let's talk about another organization you disagree with.
You have an appointment, your primary appointment, I think you said, to Brigham & Women's Hospital?
A. That's correct.
Q. Have you looked at the website of Brigham & Women's Hospital regarding ovarian cancer?
A. No.
Q. Do you know whether they list perineal talc use as a risk factor for ovarian cancer?
A. I don't know, as I never looked at the

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site.
(Whereupon, Godleski Exhibit Number 18, Printout titled Ovarian Cancer Treatment from Brigham & Women's Hospital website, was marked for identification.)
BY MR. FERGUSON:
Q. Let me show you, I think it's six pages, it says 1 out of 2 at the beginning and then it says 1 out of 4, because it took two clicks to get to it (handing).
Looking at Exhibit 18, does that appear to be at least a printout from Brigham & Women's Hospital website?
A. That's correct.
Q. Looking at, it's actually Page, I think, 3 of the group that you have, it's labeled Page 2 of 4 up in the upper right-hand corner.
A. Yes.
Q. Do you see the first section says "What causes ovarian cancer?" And it says "The cause of ovarian cancer is not yet known because most cases are sporadic," right?

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A. That's correct.
Q. Do you disagree with that comment?
A. No.
Q. And then in the next section it says "What are risk factors for ovarian cancer?" And you see they have listed seven different risk factors for ovarian cancer, including age, family history, and others.
Do you see that?
A. Yes.
Q. Is perineal talc use listed as a risk factors for ovarian cancer?
A. Not on the website.
Q. Do you believe that perineal talc use is a risk factors for ovarian cancer?
A. Yes.
Q. So you disagree with your own institution, Brigham & Women's Hospital, in that regard, correct?
MR. SMITH: Object to form.
A. This is written by a company in Yardley, Pennsylvania and reviewed by a nurse, so that's the level of scientific credibility of that website.

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BY MR. FERGUSON:
Q. Let me go back to my question to you.
Do you believe that perineal talc use is a risk factor for ovarian cancer?
A. Yes.
Q. If you were listing on a website the risk factors for ovarian cancer, you would list perineal talc use, wouldn't you?
A. I would have that, yes.
Q. But whoever prepared it, the institution from Brigham & Women's Hospital does not list it as a risk factor, correct?
MR. SMITH: Object to form.
A. That's correct.
BY MR. FERGUSON:
Q. And I take it, since you indicated you were unaware of this, you haven't contacted anyone at Brigham & Women's Hospital to convince them to add talc as a risk factor to the website?
A. No, I haven't.
Q. With regard to risk factors, you were just looking at various lists of risk factors, do you agree that a risk factor is not

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necessarily a cause? For example, a risk factor for ovarian cancer is not necessarily the cause of ovarian cancer?
A. That's true. It's associated. Interestingly they don't list -- the website also doesn't list the BRCA1, BRCA2 genes, which are also known risk factors.
Q. Do you agree, Dr. Godleski, that your opinion that talc causes ovarian cancer is not generally accepted by the medical community?
MR. SMITH: Object to form.
A. I disagree.
BY MR. FERGUSON:
Q. Other than Dr. Cramer, can you point to another person in the medical and scientific community who agrees with you that talc causes ovarian cancer?
MR. SMITH: Object to form.
A. Dr. Hess.
BY MR. FERGUSON:
Q. Anyone else?
A. Chang. I think there are several papers and authors that express that view.
Q. And how do you know that Dr. Hess has

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come to that conclusion?
A. Her --
MR. SMITH: Don't you mean Ness, not Hess? Do you mean Hess or Ness?
MR. FERGUSON: I think he probably means Ness.
MR. SMITH: I just wanted to make sure we were on the same page. I didn't want to be confused.
MR. FERGUSON: Thanks for correcting that, there's so many studies, I don't know all the authors.
BY MR. FERGUSON:
Q. In any event, how do you know that Dr. Ness has come to the conclusion that talc causes ovarian cancer?
A. Her 2010 paper supports that.
Q. And you mentioned Chang. Is that based on the paper that was written back in 1997 or so?
A. I think so.
Q. "Perineal Talc Exposure and Risk of Ovarian Carcinoma"?
A. I believe so.

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Q. All right. And the conclusion in that study was that "The investigation supported previous contentions that exposure to talc may increase risk of ovarian carcinoma. Questionable trends in duration and frequency of exposure suggest that further studies may be needed to clarify the role of talc in the etiology of this disease."
Sound like what you recall from the Chang paper?
A. Yes.
Q. Would you agree, then, that Dr. -- Ms. Chang actually was suggesting further study to clarify what the role of talc is in the etiology of ovarian cancer?
A. I think the first part of the statement is pretty clear. And then to suggest more studies are needed is not surprising.
Q. An association is not the same as cause, is it?
A. That's correct.
Q. Okay. And I was -- we got appropriately --
A. Corrected.

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Q. -- redirected due to the Ness/Hess issue. But other than Cramer, Ness, and Chang, anyone else you can point to in the medical and scientific community who agrees with you that talc causes ovarian cancer?
A. Those are three significant authors.
Q. Okay. And again, not to put you on the spot, but as you sit here today, that's all you can think of?
A. That's correct.
Q. You discuss the fact that you found 140 foreign particles in the samples that you looked at?
A. That's correct.
Q. And of those foreign particles, only about 4 percent were talc, correct?
A. 40 percent.
Q. 40 percent?
A. Well, we had 140, and of those 39 are talc, 6 are talc with nothing else associated with them.
Q. Would that be called pure talc?
A. Yeah.
Q. Okay. So 4 percent, about 4 percent

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were talc without other minerals associated with them?
A. Yeah.
Q. Do you agree that talc is contained in a variety of products?
A. Yes.
Q. Including food products?
A. Yes.
Q. Chewing gum?
A. Yep.
Q. Pharmaceutical products, including tablets and ointments?
A. Yes.
Q. Paper?
A. I don't know for paper.
Q. Don't know for paper.
Paints?
A. There are a lot of things in paint, I don't know specifically if talc is in there.
Q. Plastics?
A. Plastics, there's some in it.
Q. Rubber?
A. I don't know.
Q. Ceramics?

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A. Ceramics, yes.
Q. Adhesives?
A. Don't know.
Q. Asphalt?
A. Don't know.
Q. Fertilizers?
A. I don't know specifically.
Q. Pesticides?
A. I don't know.
Q. Now I've got an easy one for you. Cosmetics?
A. Cosmetics, yes.
Q. Okay. Are you aware of any studies that have looked at what, if any, talc exposure there would be just in the ambient air?
A. Outside air, probably little. Indoor air, definitely.
Q. All right. You're saying that there would be exposure to talc in indoor air, correct?
A. I would think so, yes.
Q. And my question is; have there been any studies, limited to indoor air in different environments, to determine how much talc is in

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the ambient air available to be inhaled?
A. Much of it is in particle size that would reach the lung if it were inhaled, so that I don't know exactly how much is there. There's a lot of silicates in the air that -- and --
MR. SMITH: Listen to his question. He asked you if there are any studies. Are you aware of any studies.
A. I can't think of any right off.
BY MR. FERGUSON:
Q. You talked earlier about macrophages, correct?
A. Yes.
Q. Tell us what those are again.
A. Those are cells that ingest particles.
Q. And were any of the particles that you found in Ms. Blaes's tissues enclosed within a macrophage?
A. The polarized light studies, I did not have any in this case. The SEM I'm not sure about, because it's very hard to tell what kind of cell is being observed when you're looking in backscatter on SEM. So if it's in a tumor, you can't necessarily tell a macrophage from a tumor

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cell very well as you're doing the analysis.
Q. So you're saying you can't tell if any of the talc particles were enclosed within a macrophage?
A. By light microscopy, and none that I saw were.
Q. How about with regard to the other foreign material, the 140 particles of other foreign material? I guess in total 140, I'm sorry.
A. Well, let me rephrase the answer.
By light microscopy using polarized light, none of the particles that I observed were within cells. By SEM, there were particles that we saw that were either in or associated with cells, but I can't tell you exactly what kind of cells they were and whether or not they were inside.
Q. Are you aware of any published study that indicates what one would expect to find as far as foreign material or particles in any type of gynecologic tissue?
A. Well, there is the study that we talked about earlier where -- the Henderson

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study, I believe it was, where they looked in ovaries and they found some talc, I'm not sure what other tissues they have, or what other materials they have in there, but that was an instance where they looked at, what, 24 ovary specimens.
Q. That was Heller actually, wasn't it?
A. Was it Heller or Henderson? One of those two.
Q. Other than that one, are you aware of any other studies?
A. No.
Q. Are you aware of any governmental or quasi-governmental organization that has declared officially that talc has a causative relationship with ovarian cancer?
A. No.
Q. Are you aware of any recognized scientific epidemiologic or medical organization that has declared talc to be a cause of ovarian cancer?
A. No.
Q. Do you know what sepiolite is?
A. It's a mineral.

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Q. And what's the composition of that mineral?
A. It's mostly magnesium silicate. It's another magnesium silicate basically.
Q. So in that sense, similar to talc as a magnesium silicate?
A. Yes.
Q. And sepiolite is found in foods, for example, correct?
A. Yes.
Q. Pharmaceutical products?
A. I'm not sure.
Q. Kitty litter?
A. Hmm?
Q. Kitty litter?
A. Possibly.
MR. FERGUSON: I think I'm going to quit for a while. Can we go off a second?
(Off the record discussion.)
(Whereupon, a recess was taken from 2:13 p.m. to 2:17 p.m.)
MR. FERGUSON: I just want to state for the record that we got the disk with Dr. Godleski's information including, I

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understand, information on each of the particles that were identified, both the talc and other particles, and we haven't had a chance to look at this, don't know what's going to be on it. We have very limited information from his report and from the other exhibit that he's provided in Exhibit 5 regarding some of the articles that he looked at. We just don't know what else is on here.
So once we look at that, we may make a request to question him further regarding some of the information that's on the disk in our remaining time.
I put that on the record. You can respond as you wish.
MR. SMITH: I'll just wait, cross that bridge when we get there.
MR. FERGUSON: That's fair enough.
All right. I'm finished. Pass to Ms. Ahern.
MS. AHERN: Thank you.
BY MS. AHERN:
Q. Dr. Godleski, I'm going to probably skip around quite a bit, so bear with me.

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You've covered some of this already, some of it will be for my own benefit, because I'm not sure I completely understand you and I don't want to misinterpret you, and also some things I noted in follow-up that I wanted to know about.
First of all, we talked a lot today about the epidemiology, the body of evidence. Can you be a bit more specific about what you mean when you say the body of evidence, or the body of information? I know it includes, in your mind, the epidemiology studies, is that correct?
A. That's correct.
Q. What else would that include?
A. Well, it's mostly the epidemiology that has been done. There have been specific studies that have been meta-studies where people have put together a number of smaller studies, and so that taken all together, and I can't cite all the authors of these many studies, but in my view there are probably 20 studies all together that show associations with talc and ovarian cancer. A lot of these have had different

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focus. And there's a much smaller number of studies that don't support that association, or don't support the association as strongly.
Q. Okay. So the epidemiology studies are what you are referring to when you talk about the body of evidence that supports an association between talc use and ovarian cancer, is that correct?
A. That's correct, yes.
Q. Okay. Have you also reviewed any of the toxicology studies concerning talc?
A. Some.
Q. Do you know which ones those were?
A. I can't -- I can't recall right off.
Q. Okay. And, Dr. Godleski, have you taken the time to review all of the case control, meta-analysis studies, and the cohort studies that deal with talc and ovarian cancer that have been published over the last 30 years?
A. I haven't done that recently.
Q. Have you ever done that?
A. I have read through many of those studies.
Q. Can you estimate how many? I think

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you said there are 20 studies, you think, that support an association. Do you know how many studies there have been all together looking at talc and ovarian cancer?
A. I would only be guessing.
Q. And do you know whether you've actually identified all of those at some point, sat down and reviewed them?
A. I don't think I've reviewed all of them.
Q. Doctor, have you reviewed Dr. Ness's report in this case?
A. Her report?
Q. Yes, sir.
A. I don't know. I think I opened it, but I don't think I really read through it. I know I had gotten it several months ago, but haven't -- had not read it. If I've read it at all I haven't read it recently.
Q. Have you read Dr. Cramer's report in this case?
A. In this case, no.
Q. Have you read Dr. Cramer's report in the Berg case?

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A. I did.
Q. And is some of the information that you have on the epidemiology related to talc use and ovarian cancer, is some of that gleaned from the report that Dr. Cramer wrote in the Berg case?
A. Possibly. I read Dr. Cramer's report on the Berg case when the Berg case was going on. I haven't read it recently, if that's what you're asking.
Q. Have you read any of the epidemiological literature since the Berg case?
A. I've read some, but I can't tell you how much or how deeply I've gone into it, because I didn't read it in preparation for this deposition.
Q. Did you read it in preparation for preparing your opinions in this case?
A. For the most part I used my own knowledge, based on what I have read previously. So it wasn't that in forming the opinion on this case that I went back and read specific papers. It was based on the body of knowledge that I had and what I have read over the years in this

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area.
Q. And I know we've gone through this again, and I'm just going to go through it again and make it clear for me as well.
You are not an epidemiologist, correct?
A. That's correct.
Q. You have no formal training in epidemiology, is that correct?
A. That's correct.
Q. Okay. And you have no formal training in cancer epidemiology, is that correct?
A. Again, I've done a lot of work in -- working with epidemiologists providing the kind of support and interest that I do. I have not done this specifically myself.
Q. Okay. And you have no formal training in biostatistics?
A. Again, as a scientist, I have taken statistical courses, I use statistics in my work. I have not trained as a biostatistician, if that's what you're asking.
Q. Maybe it would be easier if I asked you, you don't hold yourself out as a

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biostatistician?
A. That's correct.
Q. You don't hold yourself out as an epidemiologist?
A. That's correct.
Q. And you are not an expert on the quantitative and qualitative methodologies for establishing causation from epidemiologic studies, is that correct?
A. That's correct.
Q. And in your report, your report does not reference or discuss the epidemiology at all, is that correct?
A. That's correct.
Q. And you were retained in this case by Plaintiff's counsel to determine only whether foreign material was present in the ovarian tissue for Mrs. Blaes, is that correct?
A. That's correct.
Q. Were you specifically asked to look for talc, or were you asked to identify all foreign material and analyze that?
A. We were asked to find what foreign material we can.

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Q. And were you asked to do any follow-up analysis on any of the other non-talc foreign materials you found in Mrs. Blaes's ovarian tissue?
A. No. But as you're doing the work and you come across a particle, you have to analyze it to know what it is, so you save it.
Q. And did you find any titanium in any of the samples for Mrs. Blaes's ovarian tissue?
A. I thought we did, but I don't have it listed here, so I may be confusing it with another case.
Q. Okay. I'm going to ask for your best recollection, because I haven't seen the CD yet, and I don't think any of the other foreign particles that you mentioned you may have found are actually in your report.
Do you think you earlier mentioned titanium and aluminum as foreign particles that you would not normally see in human tissue?
A. Well, for sure I know there's aluminum here. And I'm trying to recall if we found titanium, and I don't recall specifically in this case. I know there was -- it must not have

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been this case, it must be another case where I know we have titanium particles.
Q. And the finding of titanium in ovarian tissue, does that mean anything to you?
A. Titanium has always been considered an inert material, titanium dioxide. It's been shown to have some inflammatory activity more recently, but that would be insignificant.
Q. What about aluminum, if you found aluminum in Mrs. Blaes's ovarian tissue -- first of all, do you remember if you found any aluminum in Mrs. Blaes's ovarian tissue?
A. Yes. Aluminum was present as aluminum silicate, and a lot of particles.
Q. Is that something that you expect to see in ovarian tissue, if you know?
A. That's something you find in dirt.
Q. If I were a mineralogist, I would be a little bit insulted at calling all different things dirt.
MR. SMITH: Object to the sidebar. If you've got a question, ask a question.
BY MS. AHERN:
Q. Would you conduct any additional

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follow-up, or did you conduct any additional follow-up on the aluminum you found in Mrs. Blaes's ovarian tissue?
A. Follow-up? I don't understand what you're asking.
Q. Other than identify it as aluminum, did you do anything else to determine whether there was an association between aluminum and her cancer?
A. No.
Q. Same for titanium, if there had been titanium, I know that you don't remember whether you found it in her tissue or not, but had there been titanium in her ovarian tissue, would you have done any additional follow-up to determine whether there was an association between titanium and cancer?
A. To my knowledge, there isn't one.
Q. Have you looked?
A. I believe so. Not recently, but we were -- we have used titanium as a negative control in various studies that I've done over the years and been associated with, and until recently it's been generally considered to be

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inert.
Q. When you say "it's been recently considered," is there a particular organization or body that you refer to?
A. No, papers. There's a paper from Fedulov out of the lab next-door to mine that shows inflammatory responses with titanium, that it wasn't as good a control as people had previously thought.
And also Oberdoerster in Rochester showed that ultrafine titanium also was inflammatory.
Q. You mentioned earlier that IARC's classification of talc as a 2B possible human carcinogen is something that also influenced your conclusion in this case, is that correct?
A. Well, it's within the body of information, yes.
Q. In addition to the epidemiology, you would consider IARC's classification of the substance in your determination of whether or not there might be an association or causal association between mineral or the compound and cancer?

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A. Yes.
Q. Were you aware that IARC has classified titanium dioxide as a 2B possible human carcinogen?
A. No, I haven't seen that.
Q. If you had known that, would you have done additional follow-up finding titanium particles that you found on Mrs. Blaes's ovarian tissues?
MR. SMITH: Objection. Assumes facts not in evidence.
A. Possibly.
BY MS. AHERN:
Q. Are you aware that there have been studies linking aluminum to breast cancer?
A. There have been studies linking aluminum to a lot of things, and most of them have not held up very well.
Q. Do you know any of those studies specifically?
A. Well, there have been a number of studies on aluminum as a potential toxic element, and most of them have not held up.
Q. Do you happen to recall, the ones that

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have associated -- had a positive association between aluminum and cancer, do you happen to know what the relative risks were?
A. No.
Q. You don't know if they were in the same range as the relative risk and association between talc and ovarian cancer?
A. No.
Q. So getting back to the original line of questioning here, so you've not included any opinions on the epidemiology in your report itself, is that correct?
A. That's correct.
Q. And you do not intend to offer an expert opinion regarding the strength or validity of published epidemiology on talc and ovarian cancer, do you?
A. Probably not.
Q. Probably not?
A. I mean I can. As I sit here now, I do not intend to offer any opinions.
Q. Because you weren't asked to do a systematic review of the epidemiology?
A. No, that's not what I was asked to do.

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Q. And would you consider yourself qualified to do a systematic review and analysis of the over 30 years of published epidemiology on talc and ovarian cancer?
A. Ask that again? What did you ask?
Q. Would you consider -- you've already acknowledged that you're not a formal epidemiologist. You don't hold yourself out as an epidemiologist, or a cancer epidemiologist, or a biostatistician, correct?
A. That's correct.
Q. Would you feel comfortable offering an expert opinion if you were asked to do a systematic analysis and review of the over 30 years of published literature on talc and ovarian cancer, and give an expert opinion on the epidemiology? Would you feel comfortable with that?
A. I probably would not do that.
Q. And you haven't been asked to, correct?
A. And I haven't been asked to.
Q. So as far as the epidemiology goes, the strength and validity of the 30-plus years

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of studies on this topic, you would defer to an epidemiologist by training, wouldn't you, to provide an expert opinion on the strength and validity of those cases? Those studies, excuse me.
A. Yes.
Q. And I have some questions about your report, just so you can clarify for me. Do you still have Exhibit 3 in front of you?
A. Yes.
Q. Just so there's no confusion later on, Figure 1 and Figure 2 are from two different slides, correct?
A. That's correct.
Q. So the first slide, you're simply looking at the morphology of the tumor?
A. Looking at the morphology and the features of the tumor.
Q. And I know you were pointing out the various features earlier, and maybe if we have time later we can have you, if you don't mind, just draw an arrow or something and explain what you're seeing there.
A. Okay.

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Q. So Figure 2 is from a different slide. Is this from ovarian tissue?
A. It's ovarian tissue from the right ovary.
Q. Okay. And you have analyzed Figure 2, the slide here, under polarized light, and you see birefringent?
A. Yes.
Q. Do you have any idea what these birefringent particles are in Figure 2?
A. Aside from them being birefringent and plate-like, I can't say more than that.
Q. And that's because in order for you to say anything about these, you would have to then take this sample, this specific slide, and conduct an SEM analysis?
A. Yes. That's more complicated than it sounds. But it's possible to actually take a slide, take the tissue off a slide, put it onto a substrate that would allow you to analyze it, and then subsequently analyze it. The idea of any of this type of study is that if you see something in one level, chances are good you're going to see it again in other levels, so that

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the -- rather than destroying slides, which essentially what that would be if you took it off and put it onto another substrate, what you end up doing is to cut additional slides from those blocks that have shown evidence of the particles, and chances are pretty good that you're going to find them in deeper levels as well, and so that's what we do.
Q. And Figure 4, the SEM image --
A. Yes.
Q. -- we're looking at ovarian tissue here, is that correct?
A. That's correct.
Q. And I think you said earlier that because the morphological features aren't very clear in this picture, you couldn't tell whether the particle is in lymphatic vessel or in the tumor itself, is that correct?
A. That's correct.
Q. Now, is there -- are you sacrificing something when you do SEM in terms of being able to distinguish the morphological characteristics of the tissue?
A. It depends on the tissue and its

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characteristics. For example, in looking at this picture, which is from block N, which is the same block as this Figure 2, we have a little bit better definition of the cellular nature of it, and what you can see here is a lot of these big globules of calcium, and that corresponds very well to the picture on Figure 1, even though Figure 1 is from a completely different slide. So that the tumor looks similarly in different locations, and depending on what the nature of the area is, you may see something like this that looks pretty good in terms of saying, oh, that's very similar to what we're looking at here, and especially if there are papillary configurations that are sticking out or something like that. Whereas in this particular area --
Q. And you're talking -- I'm sorry, I just want to narrate a little bit, you're talking now about Figure 2?
A. Figure 2.
Q. And you were comparing -- sorry, why don't you go ahead for the record, and which exhibit are you looking at?

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A. Okay. Now, Figure 2 is the same slide as many of the particles that we have here. And so now as I look at the tissue here where there's, again, a clear talc signal, it may be that this is a very similar area to the light microscopic picture of Figure 2. But you're sort of more looking at shadows here rather than the same quality of the tissue.
Q. I'm sorry, just so we know what you're talking about here, this is -- Dr. Godleski was referring to Exhibit 5, Page 8.
And you're saying, Doctor -- are you saying that these images were taken from the same block as Figure 2 in your report?
A. That's correct.
Q. Okay. And tell me again what that last page you were talking about first on there was? You mentioned, first of all, Figure 5, you were showing me this picture.
A. And this is --
Q. That's the last page of Figure 5?
A. Yes. This is also from block N, which is the same as Figure 2, but it's an area that has much more calcium, whereas the Figure 2 that

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we have doesn't show an area with a lot of calcium. And this picture looks much more like Figure 1, even though Figure 1 is from a different block, but it's from the same tissue, so it's not surprising that they match up very well.
Q. Did you take size measurements for the particles that you observed in Mrs. Blaes's tissue?
A. I'm sorry?
Q. Did you take any size measurements for the particles that you observed in the tissue in terms of microns?
A. They are all measurable, because we have the magnification, we have the particle itself, and we can measure it with our software, we can just go back and do a measurement.
Q. But did you actually do the measurements before, or have you done the measurements yet, size measurements, for the particles?
A. I think we have measurements of particle size of most of the particles.
Q. And the six particles that you've

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identified as consistent with talc -- is that the correct term, consistent with talc?
A. Yeah.
Q. Do you remember what the sizes of those particles were?
MR. SMITH: Object to form.
A. Let me see if I noted that. Right off, I don't recall. But it may be in some of this information.
(Witness reviewing document.)
A. I'm not reporting that, but just looking at the size of the particles, I would say they were in the micron or submicron range, mainly because each of these has a scale on it. And if this is 50 microns, that particle is no more than 1 micron or less, just by looking at it. But you could put a ruler on it and do a relationship if it was important to you.
BY MS. AHERN:
Q. And would we be able to do that looking at the information that you provided to us in Exhibit 13, the CD?
A. Yep, every one.
Q. Okay. Earlier on in the deposition,

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Dr. Godleski, you mentioned that you and Dr. Cramer are collecting data on cases, and I thought I heard you say you were collecting data to quantify talc use and correlate that with talc observed in ovarian tissue, is that correct?
A. Yes. Roughly, yes.
Q. Could you -- I'm sorry. Could you explain it one more time? Because I did not understand it.
A. In Dr. Cramer's records he has talc quantified, so that for further studies that we can do, he can randomly choose cases out of the highest talc use patients and the lowest or non-talc using people, and then we can -- or something in-between. And if we're asking specific questions about the biology or the response or the interaction of, say, talc particles with calcium, then we can use those as a way of doing it where we have the materials on the patients, we have the epidemiology, and so it can make for a better study.
Q. Okay. A couple questions then.
So you mentioned Dr. Cramer has

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records where he's got talc quantified. Are you talking about a woman's talc use?
A. Yes.
Q. So he's asked questions. Are these patients that have already been diagnosed with ovarian cancer?
A. Yes, these are patients that he's studied and he's published on, and they have signed consents and so forth for studies of their tissue, they've filled out questionnaires and so forth.
Q. So some of these patients, has their information already been used in Dr. Cramer's previous publications?
A. More likely than not, yes.
Q. And so does he have different now or additional information about the quantity of the talc that they used than he had before?
A. We're working on that. No. Oh, by questionnaire, no.
Q. Okay.
A. No, this is published work.
Q. And you mentioned that you would be able to look at the level of talc use and also

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somehow associate that with other minerals like calcium, is that correct?
A. Well, there's a lot of questions that we can ask with this based on what we're finding in these cases. You know, as we continue, we have interest in our own cases, and to the extent that the patients in litigation have not been -- they aren't part of a study, but if questions arise that are scientific interest, we can always go back and study those in the patient materials that we have. We already have consent to do this.
Q. And do you know -- you said, I think, that you have looked at at least around 50 cases of ovarian cancer for the purpose of this data collection and study that you're doing with Dr. Cramer?
A. Yes.
Q. These are all non-litigation cases, is that correct?
A. As far as I know, yes.
Q. And have you or Dr. Cramer presented any of the interim findings of this study anywhere as a poster or an abstract?

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A. There aren't any at this point. We've identified cases, we've started to look at them by microscopy to see if they meet the criteria that we're looking to study, and we haven't done any SEM on them yet.
Q. And the criteria for inclusion in the study would be talc use, or a certain degree of talc use?
A. No. The inclusion in the study is based on their pathology slides being findable and available, and that they are -- that they meet the pathologic criteria that we're trying to study.
Q. Okay. And I'm sorry for torturing this, I think, as I understand it, these are -- this is old information that Dr. Cramer has on a series of patients that he's already published on, and he's trying to correlate the talc use with findings, pathological findings?
A. Those are not necessarily the objectives of the study. And it's something that we're working on. And I think I was answering the question in regard to have I looked at other cases. And the answer to that

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question was yes, and it's in that context.
Now, I think, you know, when you're in the process of designing a study and just starting to look at the histologic tissue to see if it meets criteria that you're developing, yes, this is not an area that we want to explore in great detail because there's -- you know, it's very early on. But it's in -- it's something we're doing. And that was the answer to the question.
Q. All right. So very early on --
A. It's not ready for publication.
Q. Still collecting?
A. It's not close to prime time. But it was not -- that was not what I was answering. I was answering a different question when we talked about that.
Q. Okay. Fair enough.
And I have another question for you. You were talking earlier about the Roggli -- is that how you say it, Roggli?
MR. SMITH: Roggli.
BY MS. AHERN:
Q. -- the Roggli studies on asbestos --

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A. Yes.
Q. -- in your report in terms of how you arrived at your conclusion that there was substantial talc particles in Mrs. Blaes's ovarian tissue. Can you explain to me one more time how you used the Roggli study to extrapolate to Mrs. Blaes's ovarian tumor?
MR. SMITH: I'm going to object. It's been asked and answered.
Go ahead.
A. The objective of the Roggli study was to answer the question of whether the finding of one asbestos body in a section of lung tissue was an important and relevant finding in terms of the patient's asbestos exposure, or could you find this in anybody walking down the street, did it suggest an occupational exposure.
And the conclusion to the study was that if you found one asbestos body by light microscopy in a routine section, that it did indicate a level of exposure above what you would expect in the general population.
The same approach could apply here, where if you are finding particles in a section

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of tissue, and if we're finding six particles in a section of tissue, that indicates that if one does a determination of the number of particles by weight, there would be a very substantial number there in the ovary. Because if you think in terms of an ovary weighing somewhere between 10 and 20 grams, and we're examining a microgram sample of tissue, you can see that the relationship of the number and the significance of finding small numbers.
BY MS. AHERN:
Q. Was Roggli able to verify that by looking at serial sections, or something, and quantifying the number of asbestos fibers and then going back and --
A. What he related to --
Q. Sorry, I want to finish.
Was Roggli able to go back and verify his method of quantifying the number of asbestos fibers in tissue by volume by going back and doing something like a serial sectioning and counting the number of asbestos fibers?
A. He related it to digestion studies, because with digestion studies you start out

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with a gram or more of tissue, and you digest the tissue away, and you're left with the mineral amount. And there's been many studies that establish that at certain levels there's -- there's a number that's more likely than not associated with the development of mesothelioma or other asbestos-related diseases, there are other data based on digestion studies that indicate very high exposure levels. So he was trying to determine the question of, okay, if you find it by light microscopy in this section of tissue, what's the meaning of that in terms of the body of knowledge that we have of digestion, digestion-based studies, because not every case has tissue for digestion.
So it's the same idea, that since we're looking at a small -- a very small sample of tissue, what's the meaning. If we find one asbestos -- or one talc particle in a section of ovary, what have we examined in terms of the percent of ovarian tissue, we're talking about a hundredth or a thousandth of a percent of that tissue. And if you then relate that to, well, how much is it likely that we would find if we

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digested the tissue or we looked at it by some other method, we would get into the thousands and maybe even millions of particles identifiable.
Q. Okay. So you weren't suggesting here that second step, that verification, by comparing that one talc particle, for instance, to a digestion study showing how much talc you can expect per gram of tissue, that has not been done?
A. That has not been done.
Q. So it could be that you're looking at one talc particle in a gram of tissue, or it could be that you're looking at hundreds of talc particles in a gram of tissue, is that correct?
A. More likely tens of thousands.
Q. Okay. And when you say "more likely," what do you base that on?
MR. SMITH: Objection. Asked and answered.
A. We started a study where we've done -- where we did digestion of particles from cases with ovarian cancer, that study has not been finished. This is the study I talked about

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where people had moved on, and the people that started it didn't finish it. But the bottom line was that we had more particles than we could possibly quantify in those cases, and we ended up devising sampling methods in order to get some handle of how many particles were in that tissue, and it was a very large number.
BY MS. AHERN:
Q. Okay. So you have some preliminary data that hasn't been published yet?
A. Has not been published, has not gone anywhere, but that's my sense based on what we've done.
Q. So when you talk in this paragraph here, second to last paragraph, about quantifying or estimating the number of talc particles present in ovarian tissue in Mrs. Blaes's case, you're referring to unpublished data from your laboratory, is that correct?
MR. SMITH: Object to form.
A. No. I'm relating a concept that's accepted in pathology that if you find one particle in a section of tissue that it's

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significant, and applying that principle here. And that principle is based originally on the study of Roggli with asbestos, but it's also been applied in terms of bacteria in a histologic section, it's been applied in many, many other situations scientifically. So that's the body of knowledge that I'm using when I make this relationship.

MS. AHERN: I'm just going through my notes. If you've got some questions that you want to -- so we don't take up too much time.

MR. FERGUSON: Okay.

BY MR. FERGUSON:

Q. Dr. Godleski, let me just make sure I understand our prior discussion on the spectrum that is located in your report, in your Exhibit 3.

A. Okay.

Q. Over in the upper right-hand corner, we talked about this, and I probably just was confusing in my question, but it says "Spectrum 360." I assume that's just the software or something identifying what we're talking about, right?

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A. Yes.

Q. Then below that it has "AT percentage," is that right?

A. Yep.

Q. Does that stand for atomic percentage?

A. Yes.

Q. Okay. And what is the atomic percentage? I'm not talking about what it is numerically here, but in general what's an atomic percentage?

A. It includes the atomic weight of the element as well as the counts that we're getting here, so that it's a determination to give you a quantification based on the element itself.

Q. And you can, for a particle, do an analysis of the weight percentage, too, correct, or does this include the weight percentage?

A. Well --

Q. I've seen reference in normative data on weight percentage. I'm just trying to figure it out.

A. Same thing.

Q. Then there's also something called a chemical formula with regard to substances such

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as talc, correct?

A. Yes.

Q. What is the chemical formula?

A. I think it's -- what is it, SIMG05, I think, or something like that. I don't recall right now.

Q. And again, I'm not trying to test you here.

A. I just don't recall.

Q. I'm just trying to get my terms defined here, too, so I'm not misunderstanding.

Let's go back to the atomic percentage. As we look at the atomic percentage here with regard to silicon, it's 11.2, and magnesium 10.7, right?

A. Mm-hmm.

Q. And that's the ratio that you're most interested in looking at with regard to determining what substance it is, correct?

A. Yeah.

Q. And do you agree with me that the atomic percentage for talc, if we go silicon over magnesium, should be about 1.33, or do you know?

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A. No, it's not quite that. If you do it by the counts you might get that. But by the atomic percentage, it's like 1.1-to-1.

Q. That's what it is here, right?

A. Yeah. And if you look through the others here, it's all very close to that. So even where we have -- this is 10, 10.6 to 10.2.

Q. I apologize, can I just -- so I don't lose my train of thought, the 10.6 to 10.2, is that a particle that you believe is a talc particle?

A. Yes. And that has a small percentage of iron with it. And here's another one, it's 11.2 to 10.7. These are all within the appropriate range.

Q. Well, that's what --

A. And this one is 8.6 to 7.7. So, you know, we're pretty much in the same range.

Q. And what I'm trying to figure out is what is the -- where do you obtain -- where is the normative data that tells you that that's the right ratio for talc?

A. Again, you could -- in most instances you get a range, and it's within the range. I'm

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trying to recall whether the McCrone Atlas has that or whether that comes from other sources.
Q. You did mention the McCrone Atlas before. So that's one place where you believe I could go look that up and see what the atomic percentage and the ratio between silicon and magnesium would be with regard to talc?
A. Yeah, I believe so.
Q. You think I'm going to find somewhere around 1, 1.1, something in that range?
A. Yeah, in that range.
Q. You told Ms. Ahern that you had reviewed epidemiology, but I was a little unclear from the answer to the question as to whether you had reviewed any of the epidemiology that's come out since the Berg case ended. Have you reviewed any of the more recent epidemiological data?
A. Not in preparation for this deposition.
Q. Or just in general, I guess, I'm asking as part of your --
A. I read a lot of things.
Q. Do you recall reading a January, 2015

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article by Coleman called "Talcum Powder, The 'Pluto' of Prognostic Factors for Ovarian Cancer"?
A. No.
Q. Do you recall reading a 2014 article by Houghton entitled "Perineal Powder Use and Risk of Ovarian Cancer"?
A. I think I did read that. I believe that's a study where they related everything to ever or never using talc.
Q. Do you recall their conclusion was based on their results, "Perineal powder use does not appear to influence ovarian cancer risk"?
A. Yeah, that's one of the few studies that don't show it, show a relationship.
MR. FERGUSON: I think that's all, with the caveat that we may talk to you after we look at this disk if there's information that we feel we need to talk to him about since we didn't get it. And we'll, as you say, cross that bridge when we come to it, if we come to it.
MS. AHERN: I agree.

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MR. FERGUSON: Anything else?
MS. AHERN: No, nothing else at this time.
MR. SMITH: I've got a couple questions.
MR. FERGUSON: I object.
MR. SMITH: It won't be long.
CROSS EXAMINATION
BY MR. SMITH:
Q. Earlier you were asked by counsel about your focus, that you had some focus on pulmonology in your pathology practice, correct?
A. That's correct.
Q. And would it also be part of your focus in your pathology practice of finding and analyzing foreign material in all types of tissue in the body?
A. Yes, it's something I definitely do.
Q. And earlier, counsel asked you about, I believe, a couple of family members that may have been diagnosed with breast cancer and Ms. Blaes, and were you aware of that. Do you recall that?
A. No.

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Q. Well, I'll represent to you earlier, we have been here a while, that he had mentioned a couple of possible family members that have been diagnosed with breast cancer of Ms. Blaes.
If an individual, or in this case Ms. Blaes was tested for the genetic mutation BRCA1 and BRCA2, and was negative, family history wouldn't matter, would it?
MR. FERGUSON: Object to form.
MS. AHERN: Objection.
BY MR. SMITH:
Q. It wouldn't be a consideration, would it?
MR. FERGUSON: Same objection.
A. It would be less of a genetic predisposition.
BY MR. SMITH:
Q. Right. Because looking at family history, and if we -- before we had BRCA1 and BRCA2, if we looked at family history and close family history of breast and ovarian cancer, it might indicate a genetic predisposition of that disease in future children or family members, correct?

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MR. FERGUSON: Object to form.
A. That's correct.
BY MR. SMITH:
Q. And BRCA1 and BRCA2 is a genetic test that has come out that specifically analyzes the genes for that genetic predisposition, is that correct?
MR. FERGUSON: Objection.
MS. AHERN: Objection.
A. That's correct.
BY MR. SMITH:
Q. They asked you earlier about how long -- could you tell us exactly how long the talc particles have been in the tissue of Ms. Blaes, and you said you couldn't specifically give a time frame, but you did find talc imbedded deep into these tissues, correct?
A. That's correct.
Q. And that would indicate that these had been there for some time, correct?
MR. FERGUSON: Object to form.
MS. AHERN: Objection.
A. More likely than not.
BY MR. SMITH:

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Q. And you're of the opinion more likely than not that Mrs. Blaes's decades-long use of genital talc resulted in the talc that you found in her ovarian tissue, is that correct?
MR. FERGUSON: Object to form.
A. That's correct.
BY MR. SMITH:
Q. And earlier defense counsel asked you about condom use, and is that a possible alternate source of talc exposure. But if an individual, or in this case Ms. Blaes's husband had testified that all of the condoms that he used when having intercourse with Ms. Blaes were lubricated, that would go against that theory of an alternate exposure in that method, would it not?
MR. FERGUSON: Object to form.
MS. AHERN: Objection.
A. More likely than not, yes.
BY MR. SMITH:
Q. And you're of the opinion talc can transmigrate to the ovaries, correct?
A. Yes.
Q. And there are studies that show this,

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correct?
MR. FERGUSON: Same objection.
A. Correct.
BY MR. SMITH:
Q. And you were asked earlier about aluminum and titanium, and did you consider those elements in your examination of the tissue. Do you recall that from counsel?
A. Yes.
Q. And are you aware of any studies that link aluminum or titanium to ovarian cancer?
A. No.
Q. And so would it be proper for you to consider things that you don't even consider a risk factor for the disease?
MR. FERGUSON: Object to form.
MS. AHERN: Objection.
A. No.
MR. SMITH: That's all the questions I have.
MR. FERGUSON: Just briefly.
REDIRECT EXAMINATION
BY MR. FERGUSON:
Q. Mr. Smith asked you about BRCA1 and 2

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mutations. Do you recall that discussion?
A. Yes.
Q. Certainly before the BRCA1 and 2 mutations were discovered, we didn't know about them, correct?
A. That's right.
Q. Would you agree there's much to be learned in the future about ovarian cancer and, in fact, we don't know what mutations or genetic factors there may be at this point?
A. Yeah, and we don't know how those mutations interact with environmental agents.
MR. FERGUSON: Okay.
BY MS. AHERN:
Q. Are you aware of whether or not other genetic mutations or polymorphisms have been associated with ovarian cancer other than BRCA1 and BRCA2?
A. No.
MS. AHERN: Okay. No further questions.
(Whereupon, the deposition was concluded at 3:11 p.m.)

COMMONWEALTH OF MASSACHUSETTS)
SUFFOLK, SS.)

I, MAUREEN O'CONNOR POLLARD, RMR, CLR, and Notary Public in and for the Commonwealth of Massachusetts, do certify that on the 27th day of May, 2015, at 9:00 o'clock, the person above-named was duly sworn to testify to the truth of their knowledge, and examined, and such examination reduced to typewriting under my direction, and is a true record of the testimony given by the witness. I further certify that I am neither attorney, related or employed by any of the parties to this action, and that I am not a relative or employee of any attorney employed by the parties hereto, or financially interested in the action.

In witness whereof, I have hereunto set my hand this 7th day of June, 2015.

____
MAUREEN O'CONNOR POLLARD, NOTARY PUBLIC
Realtime Systems Administrator
CSR #149108

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ACKNOWLEDGMENT OF DEPONENT

I, _________________________, do Hereby certify that I have read the foregoing pages, and that the same is a correct transcription of the answers given by me to the questions therein propounded, except for the corrections or changes in form or substance, if any, noted in the attached Errata Sheet.

____
JOHN J. GODLESKI, M.D. DATE

Subscribed and sworn
To before me this
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My commission expires: _______________

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Notary Public

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